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TESTING
JUVENILE MENTALITY
—
ROBERT J. MELVILLE

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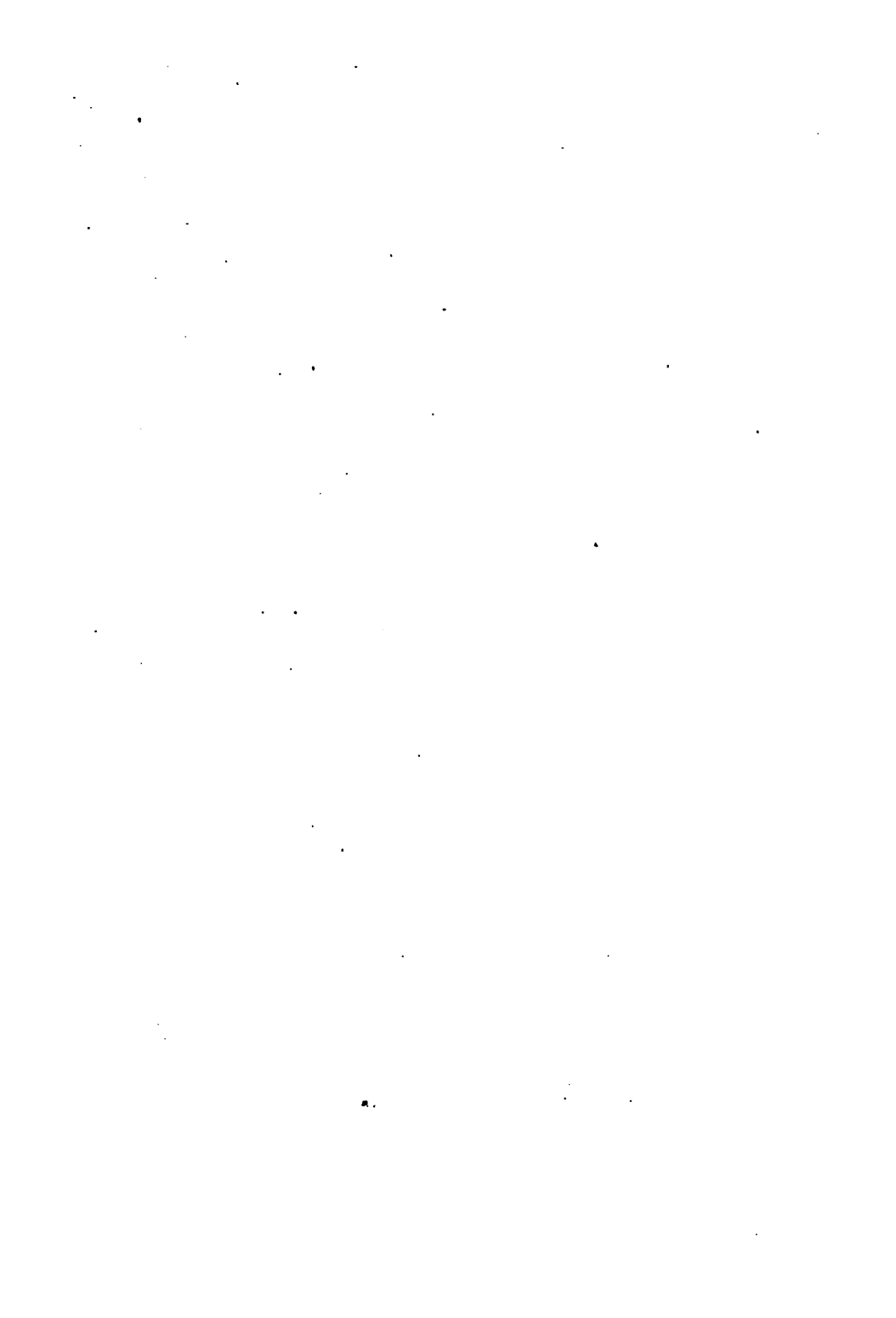
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STANDARD METHOD OF TESTING JUVENILE MENTALITY

BY THE BINET-SIMON SCALE WITH THE
ORIGINAL QUESTIONS, PICTURES, AND DRAWINGS

A Uniform Procedure and Analysis

BY

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WITH AN INTRODUCTION BY

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INTRODUCTION

THIS manual for examiners using the Binet-Simon scale of mental tests is particularly valuable through its emphasis on a number of highly important points that are frequently not fully apprehended by users of mental tests. What long experience has taught clinical psychologists, who check up their diagnoses by outcomes discovered through later observations, does not readily filter through to class-room instruction in mental testing. It is only by teaching such sane, careful qualifications of method and interpretation as are set forth in this manual that it is possible to carry out the requisites of scientific training and the development of common-sense and scientific attitude in the matter of mental testing.

The application of the Binet system is to be safely regarded, in surveying individual capabilities or in estimating group capacities, only in the light of being what the author has aptly called it, namely, first aid work. For final diagnosis of the mentality of the individual, the Binet test score is simply one out of several main facts to be taken into consideration. Not even all mental abilities are represented in this system, to say nothing of their not being thoroughly tested at each age level, and many items of the physical background inevitably form part of the problem. For group evaluations, social norms (many of them not yet established) are to be ascertained and reckoned with.

The author sees these points clearly and we welcome his endeavor to stimulate a broad-minded view of mental testing in his students and readers. His praise of the work of Binet and Simon, which we all sound, is sufficiently witnessed to by this publication of a new study of their scale for mental testing. I confess myself particularly interested in this two-fold attempt to

devise more exact methods of using this scale, while at the same time absolutely insisting on the setting of sharp limitations to the interpretation of findings by this scale. In both ways the aim of truly scientific method is complied with.

The uniform procedure developed by the author he adequately states to be provisional, but it is based upon more attention to details, we are inclined to believe, than any other manual of directions that has so far appeared. It should be clearly understood that it is addressed particularly to those who make examinations of children in the work of coöperating with larger or more intensive educational and medicopsychological efforts. A promising field is opening rapidly for this better study of human beings. To take advantage of the opportunities there is need of people of sound training and good judgment. Competent examiners using a standard and thoroughly objective method will be in increasing demand.

The whole text of the manual, apart from the specific directions, should be carefully read. The Summary of General Procedure (p. 41), the General Directions (p. 29), the Preface and other portions of Part I, contain fundamental ideas to be constantly held in the background of the examiner's consciousness.

I have responded with pleasure to the invitation to supply an introduction to this carefully evolved manual of procedure.

WILLIAM HEALY.

CHICAGO,
January, 1917.

PREFACE

HITHERTO no Binet manual has appeared which embodies a uniform method of dealing with such questions as the following: With what tests should the examiner begin? Which of two alternative questions should be first employed in a given case? Under what conditions may a test be repeated? By what precise standards shall we decide whether responses in such tests as the definitions should be credited at age six or age nine?

For the past three years a series of experimental investigations of mentality testing has been conducted by the writer in connection with organized mental surveys in a number of public schools in New York, Princeton and Philadelphia. The conducting of these surveys has involved the training and supervision of several hundred co-workers and the evaluation of the results of some thousand Binet tests. These investigations have demonstrated both the necessity and the practicability of standardizing each detail of procedure in testing juvenile mentality. This standardization, however, should embody a uniform adjustment to the subject's ability as revealed by the tests themselves.

Even in its partially standardized form Binet-Simon testing has now become recognized as an essential part of the examination of juvenile delinquents and of all persons suspected of feeble-mindedness. It is essential in examining the criminal imbeciles in the courts and prisons, the defective aliens at the immigrant stations, and the large number of disciplinary and backward children in the schools and child-caring institutions. It has been found that by the intelligent use of the Binet-Simon scale with subjects of juvenile mentality, legal decisions are rendered more fair and executive action is rendered more efficient. Taking the level of general intelligence naturally precedes the testing of spe-

cial capacities in the work of vocational analysis. Recently the school grading and promotion of normal children has been shown to be more effective when based upon mental age as measured by the Binet-Simon scale rather than upon the attainment of a certain standing in school subjects.

School officials are sometimes surprised that the results of the Binet tests are not identical with the results of their school tests. The Binet scale was expressly designed so that it should not be a direct test of school knowledge but of juvenile mental development. The scale determines how much an individual has profited from some typical forms of experience and training which the majority of children in civilized countries undergo not only in school but also in the home and on the playground.

Binet and Simon discovered early in their investigations that mental development must be gauged from a number of different angles. Hence their scale includes some fifty tests of mental abilities that function in daily life. The final revision of the scale by Binet and Simon, followed in this manual, was the result of their experiments and case studies carried on for many years in the schools and asylums of Paris. Their results led them to subordinate one by one not only many time-honored traditions but also some of the recent innovations in the fields of psychology and medicine. The reports of their investigations show, however, that none of the traditional or novel methods of examination were relegated to a minor position until each had been subjected to careful research. The chapter on clinical analysis, herein included, presents some of the conclusions reached by Binet and Simon as a result of their prolonged investigations and of their critical studies of various systems of psychopathology and of general psychology. The Binet-Simon Table of the Anatomical Limits of Subnormals reproduced in the Appendix is one of the most useful contributions to physical diagnosis.

The writer intends that this manual may aid in the careful training and exact guidance of an ever-increasing corps of com-

PREFACE

vii

petent examiners who will be able to render first aid in juvenile mental crises by means of a brief scientific examination. Such an intention appears to have guided Binet throughout his researches; and his many years of experimental work established a thorough basis for its accomplishment. This was Binet's great contribution to the promotion of child welfare and to progress in mental hygiene.

NORBERT J. MELVILLE.

PHILADELPHIA,
January, 1917.

ACKNOWLEDGMENTS

THE writer is deeply grateful to the Philadelphia school officials for their hearty co-operation. Especial acknowledgments are due to Dr. Oliver P. Cornman, Associate Superintendent having charge of special classes; to Dr. Walter S. Cornell, Director of the Division of Medical Inspection; to Dr. Francis B. Brandt, Head of the School of Pedagogy and to my colleagues on the faculty; and to the many principals and teachers, for assistance in the administrative details of the mental survey; to the classes of 1915, '16, and '17 for their experimental and logical critique of each detail of procedure; to Messrs. Fromuth, Hess, and Rafferty of the School of Pedagogy and to Principal William C. Ash and Mr. J. M. Harvey of the Trades School for typographical assistance. The writer wishes to express his indebtedness to the many investigators who have published results and to the many clinicians who entered into conference with him—particularly to Dr. Mabel R. Fernald and Dr. Mary K. Hayes for their valuable criticisms and suggestions based upon the results of the questionnaire herein mentioned. The manuscript was kindly read by Dr. William Healy, Dr. John D. Melville, Dr. J. M. McCallie, Mr. Frederick W. Ellis, and members of the Vineland Staff. Through the kindness of Dr. H. H. Goddard the original pictures are reproduced from the plates used in Miss Kite's translation of the works of Binet and Simon. The chapter on clinical analysis is for the most part an abridgment from the Vineland translations.

NORBERT J. MELVILLE.

CONTENTS

INTRODUCTION BY WILLIAM HEALY.....	iii
------------------------------------	-----

PART I

GENERAL PROCEDURE IN GATHERING AND ANALYZING THE DATA.....	1
Nature and Scope of the Standard Method	3
Analysis of Results of Mentality Tests.....	8
Provisional Evaluations and Classifications	9
The Problem of Statistical Analysis	11
The Problem of Clinical Interpretation.....	13
General Plan of Orthogenic Case Study.....	24
Selected References on the Binet-Simon Scale.....	25
General Directions to Examiners	29
Instructions to School Examiners	32
Standard Record Form and Directions for Using.....	32
Uniform Procedure in Regard to Test Order	38
General Rules Concerning Repetition.....	39
Test Materials and General Directions for Using.....	40
Summary of General Procedure	41

PART II

UNIFORM METHOD OF APPLYING THE BINET-SIMON SCALE (Final Revision by Binet and Simon, 1911)	43
---	----

APPENDIX

Tests Above Year Fifteen	128
Scales for Marking Drawings.....	130
Orthogenic and Psycho-Educational Tables	132
Table of Anatomical Limits for Subnormals (Boys).....	134

PART I

GENERAL PROCEDURE

IN

GATHERING AND ANALYZING THE DATA

STANDARD METHOD OF TESTING JUVENILE MENTALITY

NATURE AND SCOPE OF THE STANDARD METHOD

THE present manual ¹ grew out of a series of lectures, demonstrations, and laboratory conferences in connection with conducting an organized mental survey of the pupils in the Philadelphia special classes.² Various methods of mental testing and of orthogenic case study were tried out but no consistent detailed plan of procedure could be found. It appeared necessary to simplify for the sake of clearness most of the plans for collecting supplementary data.

Hitherto as regards the matter of test order, examiners have relied either upon personal opinion, upon "random testing" (S. R.),³ or upon some inflexible order of tests (Y. P.).⁴ However, it has been recognized that "the child's efforts in the tests are sometimes markedly influenced by the order in which they are given" (S. R.). In like manner the choice among alternate formulæ—*e.g.*, in the picture test—has not been clearly decided though lack of insight in the choice of the formula "would ruin the test" (S. R.); or the examiner has been instructed that "if one form of expression or explanation is not intelligible to the child, care should be taken that a clear understanding is established by some variation of the form of statement" (Y. P.). Practically all recent investigators of mentality testing show that they

¹ For a detailed presentation of the experimental and logical basis of the standardization see a Report on the Standardization of Binet Testing (in preparation).

² See the *Psychological Clinic*, 1916, vol. ix, pp. 258-265.

³ Stanford Revision by Terman and others, Boston, 1916.

⁴ Point-scale by Yerkes and others, Baltimore, 1915.

feel the need of standard rules in regard to allowing second chances, to deciding certain details of scoring, etc.

Part I of this manual includes directions for using the Standard Record Form, which has been adopted as Form 43—Record of Binet Examination—Philadelphia Public Schools. The first side of the record form provides for a summary of the results of (1) the application of the Binet scale and (2) standardized measurements and judgments of physiological age, school ability, etc. The second side provides a convenient means of scoring each test. The grouping of the tests by years is identical with that of Binet and Simon, 1911.⁵ The arrangement of the tests is based upon two considerations.

(1) Tests which the majority of investigations thus far reported⁶ have shown to be most highly diagnostic in differentiating the mentally deficient from the normal, constitute the first or *a* series of tests; those next in diagnostic value constitute the *b* series, etc. Writers on the subject agree also that the tests here constituting the *a* series are in general the ones best suited for the early part of the examination. (2) Those tests which involve the use of similar materials or methods are arranged in the same series so that they will be given in sequence⁷—a procedure specified by Binet at certain points in the scale. The third and fourth sides of the record form provide space, usually sufficient, for recording all important oral responses and responses requiring writing and drawing. Provision is also made for recording each step in the calculations by which the final test scores are obtained. By the use of the Binet quotient as herein explained, “the Binet-Simon ‘age-grade’ method becomes transformed automatically into a ‘point-scale method,’ if one wants to use it that way. As such it is superior to any other point scale

⁵ Bull. de la soc. libre pour l'étude ps. de l'enfant. Paris, 1911, Nos. 10 and 11.

⁶ See Binet, Stern, etc., in Selected References, pp. 25-28.

⁷ This latter principle of arrangement was suggested by Dr. J. M. McCallie.

that has been proposed, because it includes a larger number of tests and its points have definite meaning" (S. R.). Principles for guidance in the administration of the tests and the evaluation of the data are included in Part I, together with a selected bibliography representing some of the numerous fields of activity where the Binet-Simon scale has proved valuable.

The Uniform Method of applying the Binet-Simon scale, with notes suggesting supplementary trial variations, comprises Part II of this manual. The Uniform Method is not another revision or adaptation of the Binet-Simon tests. The standardization is based upon (1) the experiences growing out of an application in over a thousand cases of the recommendations^{*} of the Buffalo Conference on Binet testing and (2) a comparative study of the methods used by other investigators. A series of conferences were held with the directors and clinical assistants in ten psychological clinics and laboratories. Finally every detail of the Uniform Method was reviewed in the light of the returns of a questionnaire on the details of Binet testing and scoring sent out by Dr. Mabel R. Fernald, of the Laboratory of Social Hygiene, Bedford Hills, N. Y.

Previous contributions toward standardizing Binet testing, with the exception of the work of the late Dr. Edmund B. Huey, have been devoted chiefly to adapting the tests on the basis of results obtained with children of a given nationality. However, the employment of tests throughout a wide range of years and the careful interpretation of the test data, obviate the necessity of adaptations. Such varied adaptations prevent the establishment of racial and group norms based upon one standard method. This idea of radically altering the scale for subjects of different nationalities appears similar to the ideal of revising thermometer scales for various altitudes. The analogy would be more complete if one would imagine all these various thermometer scales called

^{*}Generally accepted in this country as the working basis for the development of a standard procedure from that time on, 1913.

Centigrade and each designed to register the boiling point at 100° in its own altitude. The confusion and incomparability resulting from such revisions appear to more than counterbalance any apparent advantages.

With a view to promoting intercomparability of results, notes have been appended to the test directions indicating the variations found in the adaptations of the Binet-Simon scale in use in this country. Such adaptations are referred to in this manual by the following abbreviations:

G. Revision by Goddard, Vineland Training School, 1911.

K. Revision by Kuhlmann, Minnesota School for Feeble-minded, 1912.

B. Revision by Bobertag, Institut für angewandte Psychologie, 1913.

Y. P. Point Scale by Yerkes and assistants, Harvard University, 1915.

S. R. Stanford Revision by Terman and assistants, Stanford University, 1916.

Owing to the many social and practical issues involved, the following considerations appear to the writer to be of importance in connection with the future of the work:

(1) That we endeavor to define more accurately the qualifications in the matter of training and experience for (a) Consulting Psychologists, who should know both how to administer accurately the several mentality scales that are in use and how to interpret the total age scores and the individual plusses, minuses, or points in the light of the racial and social averages obtained to date, together with all the other educational and social data, which should accompany each test result; and (b) Field Examiners or Binet Assistants, advanced students in psychology who should probably have as a minimum 60 hours of laboratory work together with courses in child psychology and in the technique of applying the tests with the aid of a standard manual that does not necessitate improvisation.

(2) That we insist that a Binet age score, a Goddard age score, and the like be not accepted on their face value, recommending their interpretation in terms of mental growth periods in the light of group norms and of supplementary data.

(3) That instead of attempting to make adaptations of the Binet scale, investigators strike out along new lines in the development of supplementary scales. Experiments in this direction are now being conducted by means of apparatus hitherto used in studying pre-verbal intelligence as found in idiots, animals and young infants. Those who have been doing most work with such apparatus, as for example Drs. Healy, Witmer and others, are using it in supplementing the Binet-Simon scale (1911) as valid for subjects "up to ten years or so of age."⁹

This manual is intended for the training and use of advanced students of applied psychology who wish to co-operate in the work of grading and classifying children and others of juvenile mentality on the basis of their mental development. All co-workers¹⁰ in the educational, sociological or medical fields should have both general and specific preparation for the application of juvenile mentality scales. Such preparation should include attendance at a series of demonstrations, supplemented by practice testing under observation. Only those directions and explanations are given in the Method which have proved valuable in accompanying and supplementing the demonstrations and practice testing mentioned above.

Field examiners and clinical assistants, who have been thus trained to observe a standard procedure, may take the Binet level of a subject and make tentative evaluations. Such evaluations are useful as a "first aid" in selecting and classifying those who

⁹ Healy, W., and Bronner, A., in *Mentality Tests; A Symposium*.

¹⁰ In the Philadelphia School of Pedagogy 120 hours of general and experimental psychology, experimental child study, demonstrations and practice testing have proved to be adequate preparation for such co-workers. Their testing is then done under supervision, and the results are submitted to a consulting psychologist for interpretation.

are in need of further examination and of special education. Such classification tends more toward social justice and educational efficiency than do the unpsychological groupings of everyday life. The presence of the mentally handicapped in many communities in numbers entirely disproportional to the number of available specialists makes it highly desirable that a system of preliminary examination and evaluation be employed. The study of individual cases has repeatedly shown the frequent need of such first aid tests not only for the subnormal but also for the normal and the supernormal.

The typographical arrangement of this manual is the result of a trying-out of various ways of assembling the test materials with a view to increasing efficiency in testing. Heretofore this has been not infrequently impaired by the mislaying of materials in the form of loose cards or by the difficult handling and partial covering of the test materials, when crowded together in an appendix. The pictures and drawings are so printed that they face the subject while the directions for using them face the examiner. Should a subject appear to be distracted by the reversed printing, the manual may be folded back so that only the plates appear to the subject and another copy used for the directions. So far this precaution has not seemed necessary with any of our subjects. The test manual may be placed so as to rest against a stand. The manual will then act as a shield behind which the scoring may be done unobtrusively.

ANALYSIS OF RESULTS OF MENTALITY TESTS

The fact that any measuring scale is in part a convention adopted for practical purposes should never be lost sight of in analyzing results. Owing to the ethical and legal questions involved, such terms as imbecile or dement should not be applied to a given individual except when the Binet findings are corroborated by a thorough psycho-biological study of the case. Even

then such formal diagnoses are inferior to a description (1) of the general mental and physiological level in terms of the analogous growth period, such as early infancy, later childhood, etc., and (2) of the kinds and degrees of anomaly found. The Orthogenic and Psycho-educational Tables given in the Appendix are a guide in the work of provisional classification. The Table of Anatomical Limits there given and the method of collecting supplementary data, explained on pages 32-38, should be studied in connection with the discussion of the statistical and clinical analysis of results.

As Binet and Simon insist, the attempt to analyze mentality tests under the rubrics of introspective psychology such as attention, etc., is usually due to a desire to explain mental anomalies by the absence or weakness of some one of "the primordial faculties. (We have sometimes employed these expressions in our descriptions but we have not abused them.) The theory of the intellectual faculties and the theory of the scheme of thought belong to two different planes."

PROVISIONAL EVALUATIONS AND CLASSIFICATIONS

As indicated in the Table of Orthogenic Classification in the Appendix, both the total Binet score and the Binet base value are significant as indicative of the mental growth period which the subject's mental level resembles. The total Binet score is frequently called the mental age or more correctly the Binet age value. The Binet base is the higher of two successive years wherein the subject passes all the tests. The significance of the Binet base for purposes of mental classification has been emphasized in the studies of Frederick W. Ellis and in the preliminary study of potential feeble-mindedness by Doll, both cited below. However, the total score and the age difference, indicative of mental retardation or acceleration, have thus far been more generally used in orthogenic case studies.

The rule adopted by Binet for computing the total score has been used by the majority of investigators as valid up to year nine. The rule is to add to the base year 0.2 credit for each test passed above the base year, *irrespective of the extent of the 'scattering' of such make-up tests*. For the tests above year nine we employ the following plan in determining credit: (1) The first to the fifth test passed above year nine each receives 0.2 year credit, *irrespective of the extent of 'scattering'*—that is, whether or not such credit accrues from tests within the ten year group or from tests which compensate for failures in the ten year group. (2) The sixth to the tenth test passed each receives 0.4 year credit. (3) The eleventh test, etc., passed above year nine, each receives 0.6 year credit. According to the Uniform Method the tests in years ten and above are employed with all high grade cases. The above plan of credit preserves the calibration of the upper end of the scale. At the same time the scores worked out by this plan appear to characterize the mental level of our subjects more nearly than the scores resulting from other methods of computation.

Conservative estimates today place the upper limit of feeble-mindedness at least in a legal sense at Binet age ten; others place it at Binet age eleven.¹¹ Hence failure in some of the twelve year tests and in all of the fifteen year tests is not necessarily an indication of feeble-mindedness even in the case of adults. However, failure in certain of the tests may have diagnostic significance as explained hereafter.

A Binet age score below eleven when accompanied by a sub-age (retardation) of more than three years is usually indicative of serious mental deficiency. Even when accompanied by a slight sub-age score, a Binet age score below eleven may be indicative of potential mental deficiency¹² when the test record reveals

¹¹ 10.2 years (Goddard) cf. Kohs—The Practicability of the Binet Scale and the Question of Borderline Case.

¹² Cf. Doll, E. A., Prelim. Note on Diagnosis of Potential Feeble-mindedness. (See Refer's.)

a Binet base that is six¹⁸ or more years below the life age.

Owing to the wide variations possible in the fields of success which go to form the total or final Binet score, it has been found desirable to base the more important provisional classifications upon a systematic analysis of the test records. Our system of group comparison is embodied in the Orthogenic Table given in the Appendix. It is presented as a tentative standard working plan.

In accordance with the above system of classification, the subjects fall into orthogenic divisions which are designated by the analogous mental growth periods. For purposes of institutional or special school training, some such *grading* of subnormal subjects by mental growth periods rather than by amount of deficiency is generally recommended. However, for purposes of individual and group treatment of all exceptional cases by educational means, it is important to bear in mind (1) the amount of mental superiority or inferiority indicated by the scale, (2) the presence of curable or incurable special defects, and (3) the degree of literacy or illiteracy in relation to the age and to the environment of the subjects. These factors are brought into relation in the Table of Psycho-educational Groups.

THE PROBLEM OF STATISTICAL ANALYSIS

The refinements of statistical and clinical analysis are not essential in the work of provisional classification just discussed. However, in making diagnoses, prognoses and recommendations for orthogenic treatment, careful interpretation is essential. The employment of a standard scale, supplemented by correction tables, and the establishment of standards of interpretation are invaluable for progress in this field. Given a standard method of test procedure and of treating the results, it then becomes possible to

¹⁸ Cf. Ellis, F. W., Report of Mental Examinations at Neurological Inst., N. Y. 5th and 6th Ann. Rept. of N. Y. Probation and Protective Assn., 1913, 1914.

compare results wherever obtained by that method and to construct correction tables for each racial and social group on the basis of such data. Binet pointed out, for example, that the age markings on his scale indicate standards of normality based on children in the schools of Paris, situated in the poorer districts, and that children of persons in comfortable circumstances have shown an average of one year in advance of the scale. The establishment of detailed correction tables is a task that must follow upon the working out of a uniform method of procedure.

In constructing such correction tables, attention should first be given to the establishment of racial and social norms for the Binet base and for the total score. Any attempt to construct these composite scores from data gathered on the individual tests is doomed to failure because such procedure ignores the element of compensation that is involved in pooled correlations.

Many statistical refinements have been proposed for the treatment of Binet values. Several investigators, following Stern, have advocated the use of the so-called mental quotient. This measure, to which we apply the term Binet quotient, is calculated by dividing the Binet age by the life age. This method of substituting a percentage or point-scale score for the age difference score has the disadvantage that it requires more interpretation than the values from which it is derived.

Among the most important statistical problems to be worked out is the determination of the co-efficient of correlation between Binet ages and measures of success in various fields of juvenile and adult activity. The question of correlation between Binet age and physiological age is of considerable interest. In attacking this problem there is need of some standard method of computing physiological age and of determining the frontiers of physiological abnormality, especially as regards the height-weight index, the vital index, and that of physical excess. Binet's Table of Limits for Subnormals (Boys), printed in the Appendix, is one of the most useful contributions at present available in this field.

In conclusion, let us realize that as long as there are important human qualities like emotional attitude which have not yet been adequately measured, clinical interpretation must go hand in hand with statistical interpretation. Finally it should be remembered that as long as clinical interpretation is essential in diagnoses many of the finer problems of statistical treatment are to a certain extent academic in character. There is one problem of statistical evaluation, however, which appears to have immediate significance for applied psychology and sociology. This is the problem of determining as closely as possible what per cent. of the population of a given country may be expected to reach each of the Binet levels. Such data would afford valuable criteria for a uniform interpretation of standard scores.

THE PROBLEM OF CLINICAL INTERPRETATION

The preceding suggestions on the problem of statistical interpretation are based for the most part on the conclusions reached by Binet and Simon. The problems of clinical interpretation will be presented in the form of abridged quotations taken directly from the reports of these investigators published in *L'Année Psychologique* from 1905 to 1911 inclusive:¹⁴

In previous publications, we (Binet and Simon) have shown that it is possible to divide the methods of measuring intelligence into three groups: (1) the anatomical method (measurement of the cranium, of the face, of corporeal development; observation and interpretation of stigmata of degeneracy, etc.); (2) the pedagogical method (measurement of knowledge acquired at school, principally in spelling and arithmetic); (3) the psychological method (measurement of the uncultured intelligence). All these phases of the same study are rapidly being developed, thanks to the collaboration of a few persons whom we have succeeded in

¹⁴ The Vineland translations have been drawn from, except in the final paragraphs.

interesting in them, but we shall present elsewhere the anatomical study. To sum up, we can utilize three methods for the diagnosis of the intellectual level among subnormals.

1. The psychological method which is almost always applicable and which is almost certain to reveal the signs of defect; the difficulty being in the execution of the tests which demand in the experimenter a great facility in experimental psychology.

2. The pedagogical method which is very frequently applicable, and which reveals probable signs of defect.

3. The medical method which is applicable only in a restricted number of cases, and which reveals possible signs of defect.

Here we shall consider only the psychological measurement of intelligence. This measurement is taken by means of a series of tests, the gradation of which constitutes what we call a "Measuring Scale of Intelligence." This scale, strictly speaking, does not permit the "measure" of the intelligence, because intellectual qualities are not superposable, and therefore cannot be measured as linear surfaces are measured but on the contrary, a classification, a hierarchy among diverse intelligences; and for the necessities of practice this classification is equivalent to a measure. We shall, therefore, be able to know, after studying two individuals, if one rises above the other and to how many degrees, if one rises above the average level of other individuals considered as normal, or if he remains below. Understanding the normal progress of intellectual development among normals, we shall be able to determine how many years such an individual is advanced or retarded. In a word, we shall be able to determine to what degrees of the scale idiocy, imbecility, and moronity correspond.

In the course of our explanation, we have insisted on the character of our method of measuring. Notwithstanding appearances it is not an automatic method comparable to a weighing machine in a railroad station on which one need but stand in order that the machine throw out the weight printed on a ticket. It is a method which requires some originality to operate, and

we warn the busy doctor who would apply it by means of hospital attendants that he will be disappointed. The results of our examination have no value if deprived of all comment; they need to be interpreted. We are conscious that in insisting upon the necessity of this interpretation we seem to open the door to arbitrary opinions and to deprive our methods of all precision. This is so only in appearance. Our examination of intelligence will always be superior to the ordinary examinations of instruction, because it has many advantages over these. It unfolds according to an invariable plan, it takes the exact age into account; it not only depends upon the replies but compares them with a norm which is at the same time a real average determined by experience.

Distinction between intelligence and scholastic aptitude. Let us commence with the easiest distinctions. We have often said that in our study we have sought to find the natural intelligence of the child, and not his degree of culture, his amount of instruction.

Furthermore, the intellectual faculty appears to us to be independent not only of instruction but of that which may be called the scholastic faculty, that is to say, the faculty of learning at school, the faculty of assimilating the instruction given in school with the methods used in school. It seems to us that the scholastic aptitude admits of other things than intelligence; to succeed in his studies, one must have qualities which depend especially on attention, will, and character; for example a certain docility, a regularity of habits, and especially continuity of effort. The lack of attention, of character, of will, do not appear or scarcely so, in our tests of intelligence. In fact, in our examinations we have not found an inattentive child except among those of three or four years. All make a good effort; they are near us and our presence alone is sufficient to prevent a weakening of attention. It is not under such conditions that one can measure the ordinary power of attention of a child; it is when he is left to himself.

Does our measuring scale fail to do justice to a child of uncommon intelligence without culture, or with a scholastic culture much inferior to his intelligence? We do not think so. Such a child will show his superiority in the repetition of figures, in the repetition of sentences, paper cutting, the arrangement of weights, the interpretation of pictures, etc. And it is a specially interesting feature of these tests that they permit us, when necessary, to free a beautiful native intelligence from the trammels of the school.

The maturity of intelligence is very distinct from the rectitude of intelligence, and the proof is that there exist very plain examples, already cited by us, where the intelligence has maturity without rectitude. Thus a pupil of twelve years succeeds in uniting in one sentence the three words given him, but the sentence is meaningless; he has maturity, not rectitude. Another, a true adult, a man of twenty-four, a veritable block-head—to quote his companions—gives us the interpretation of a picture, but his interpretation is remarkably false. To interpret is to have maturity; to make gross errors is to lack rectitude.

The same distinction is also observable when one compares the answers to the tests of intelligence given by the subnormal with those of normal pupils. Let us take for example, without choosing, 13 subnormals of nine to twelve years, whose intellectual retardation varies from one to four years. * * * The average of absurd mistakes for the subnormal would be 3, for the normal scarcely 0.5. A very sensible difference which shows us, be it said in passing, that what is lacking in the subnormal is not only the *maturity* of intelligence (which is doubtless also lacking, for they are constantly retarded) but also the *rectitude* of intelligence. We limit ourselves for the present to formulating these remarks; they are stepping-stones.

Other traits of childish intelligence must also be studied so as to discover if in certain cases the lack of rectitude does not also result from lack of maturity.

Retardation is a term relative to a number of circumstances which must be taken into account in order to judge each particular case. A defective adult even of inferior degree, for example an imbecile of forty, who is in general of the mental level of five years * * * from one point of view is certainly much superior to the child of five years, and the reason is that he has profited by an experience very much longer. Let us then lay aside these practical notions which have no bearing here. There remain six or seven fundamental tests uniquely expressive of the intelligence; these are the tests that may be considered as forming for the laboring class of Paris and its environs the borderline between moronity and the normal state. These tests are: first, arrangement of weights (Xa); second, answers to questions difficult of comprehension (Xc); third, the construction of a sentence containing three given words (Xd, XIId); fourth, the definition of abstract terms (XIIa); fifth, the interpretation of pictures (XVa); sixth, the making of rimes (XVc). Our subjects in the hospital were able to pass some of these tests but not one could pass all, nor even three of them. Now this is not a special localized success, which is important for diagnosing a level of intelligence. All work has shown that intelligence is measured by a synthesis of results. We hope then that we are not dangerously precise in admitting that the six preceding tests will apprehend all feeble-minded adults; and that one who can pass the majority of them, or at least four, is normal. For us every subject from the laboring class of the region of Paris is normal if he has satisfied the condition of this examination of intelligence; however, the examination shows only that he has intelligence enough to live outside of an institution, and that intelligence may coexist with accentuated instability, or with irresistible impulses, or even with other pathological symptoms grave enough to necessitate his segregation.

In terminating this account, it will suffice to make a very brief allusion to the appreciation of penal responsibility; there also

our scale will render service. The problems of penal responsibility, such as are actually placed before the tribunals, are most complex and recently have caused discussions that are highly curious on account of the attention which has been paid to words rather than to things. We have scarcely the space here to make the multiple distinctions which would be necessary in making clear the real situation. It will suffice to remark that in certain cases experts have to give their opinion on the degree of intelligence of an accused person; and that according to their customary point of view, which consists in distinguishing health from illness, they are preoccupied in learning if the accused should or should not enter the group of feeble-minded. It is strange that so far, no other criterion than a subjective impression can guide them; they weigh each case with their good sense, which presupposes in the first place that this is a possession common to all men, and in the second place that everybody's good sense is equal to every other person's.

We have taken the level of intelligence of a great number of demented and here is what we have noted. Although the method was organized for children and imbeciles only, the great majority of demented lend themselves admirably to it.

One who relied solely upon the results of our measuring scale would not be able to grasp the mental differences which differentiate an imbecile from a general paralytic demented. Shall we conclude that these subjects have the same mentality? Evidently not. We must put our readers on their guard against this erroneous interpretation of the bearing of our measurements. The scale which we use is made up of a series of small, intellectual problems, and it is quite possible that two individuals may fail in the same problems without for that reason having similar mentalities; the practical consequence is that the efficiency of their mentality is the same; but the mentalities may be different. Children, imbeciles and paralytics are alike in their inability to solve

the same problems ; they are stopped by the same obstacles so that we can attribute to them the same mental level ; but the identity of the results in no way implies the identity of mechanisms ; the mentalities remain distinct.

In the first place, that which distinguishes the ignorance of the imbecile from the functional inertia of the dement is that with the latter the failures and the errors have a remarkable degree of inconsistency, which indicates disturbances, accidents, while the negative results of the imbecile present on the contrary considerable consistency, something which is not a disturbance but is the expression of the limit of his mind. In fact, we have seen certain demented fail before some difficulty and five minutes later triumph over it brilliantly. It is the same for their disturbances of articulation. Give them a word difficult to pronounce, they fail ; then at a moment when one expects it least they pronounce it without difficulty. The second distinctive sign between the mentality of an imbecile and that of a general paralytic is furnished by the consideration of the intellectual level. It is in fact by relation to their level that one must judge of the importance of the phenomena of deficiency which they present. The errors committed by an imbecile are not surprising since his intelligence is so limited. On the contrary the errors of a paralytic are at variance with his level.

The inertia of functioning which we observe in general paralytics is especially recognized by the contrast which exists between their failures and their intellectual level in so far as one can accurately measure it ; and, furthermore, their intellectual level appears to be higher than it really is because of the presence of residues, which consist in the verbal form of their replies rather than in the content. It remains for us now to go a little farther and having explained what a disturbance of functioning is, to contrast it with a lack of development.

A curious experiment that we have often tried with children of all ages, adults of every social condition, imbeciles and morons of every level, and general paralytics of every degree of disor-

ganization shows admirably in what this development consists. We refer to the comments upon pictures. We place before an imbecile and a general paralytic a picture representing two old people in want, stranded upon a bench; one of them is an old man with a white beard and eyes closed; the other, a woman, is leaning against him. An imbecile is satisfied with the response, "It is a man." A general paralytic, impressed no doubt by the head and beard of the man, makes this reflection, "One would say Victor Hugo." There is here the character of specialty (differentiation) which we consider one of the qualities of intellectual development. A second character is that of representing what is essential in the reality. Here again the comments upon pictures furnish us with many examples. Many children looking at the pictures are struck by some insignificant detail; in the same way dull intelligences take only the immediate appearance of the reality and neglect what they do not see but what is nevertheless of infinitely greater importance.

In opposing thus the quality of the states of consciousness with their evocability we make a distinction between the development of the intelligence and its functioning, and at the same time between the mentality of the imbecile and that of the paralytic dement; the mentality of the imbecile is composed of simple states of consciousness which are evoked with normal facility; the mentality of the paralytic is composed of states which are more complex but which have become difficult of evocation.

If senile dementes are especially affected in the evocation of their memories, is it right to say that we should compare them to general paralytics, since we have admitted that with the latter the impotence of evocation gives the key to all or nearly all of their disturbances of functioning? We have drawn at some length the portrait of Mme. Solas, a paralytic who passed judgment upon herself and found herself very stupid. One could not have said of her that paralytic dementia always destroys the judgment. To avoid these contradictions one must take into account the

fundamental idea of level. Without doubt at a given level the general paralytic has infinitely less judgment than the senile dement. Mme. Langlais has an intelligence of scarcely four years; the paralytics of seven or eight years judge much less correctly than she and have consequently very much less common sense.

Mental confusion gives to many psychopaths the appearance of a lowering of intellectual level due to incoherence of expression. It is necessary to know how to distinguish mental confusion and dementia; this is especially necessary for prognosis, which all idea of dementia renders much more serious.

This problem is of importance for there are many cases in which mental disorder takes on a confusional form. The chief interest lies in the differential diagnosis of manic-depressive insanity and dementia præcox. In dementia præcox there exists a real lowering of level, and mental confusion exists also in most varieties. On the other hand, in manic-depressive insanity there does not exist a real lowering of level, but this malady also presents quite often a confusional element. Consequently the diagnosis of dementia præcox in relation to manic-depressive insanity, when the latter involves confusional states, consists in discovering what is the quantity of intelligence preserved under the confusion.

There exist among certain imbeciles and among the unstable, fantastic ideas, impulses, sudden paroxysms of rage, wild pranks. Possibly one might admit that these episodic phenomena are explained by a bursting forth of this automatic life, that is to say in the modern phrase, a lack of synthesis; let us put it better: a simultaneous lack of co-ordination and of hierarchy. One may understand from this that these impulses take on so much importance because they have escaped the control of the higher faculties. So be it. But all defectives do not by any means present phenomena of this kind. Besides, it is not because they present them that they are defectives. Outside of these accidental trou-

bles they have a peculiar mental state, characteristic of defectives, which is imbecility, idiocy, or moronity as the case may be; and what we insist upon is, that in order to explain this chronic mental state, one has no right to speak of lack of synthesis, as is habitually done; here the expression has no sense whatever, and those who employ it are parrots.

Is it possible to cite known mental faculties which belong to normals and are not to be found among defectives? Formerly this was believed and certain authors believe it still, but this is because they have submitted their subjects to incomplete observations. Let us make an enumeration. Is the defective radically incapable of attention? Evidently not. We have proved, even with idiots, that they give undeniable evidences of attention. Recall the idiot Vouzin, who looks at us a little, specially when we call him loudly, and who for a moment even showed spontaneous attention, when he took the music box from our hands. Is it memory that is lacking? Not that either. We have noted many instances of prolonged memory among them. Denise, the poor girl, remembered for several days the object that we called "Papa."

We may thus pass in review all our faculties, and determine that not one is entirely lacking in them. They always have them in some degree. The arsenal of their intellect is equipped with all the weapons. All this leads to the conclusion that the difference between the defective and the normal is not produced by the absence of a particular faculty, and alienists who in their definitions have seemed to insinuate the contrary, are deceived.

To this conception of a structural psychology we oppose its counterpart, that which gives action as the end of thought and which seeks the very essence of thought in a system of actions. There are intimate consequences that will make themselves felt in the manner of positing the most serious psychological problems, in particular the manner of understanding the attention, generalization, and also the relation of the conscious to the un-

conscious, and the reciprocal influence of the emotions and the thoughts, and finally the relation of delirium to emotivity. We note, as a logical example of the revolution which we predict, a new method for measuring the phenomena of consciousness; instead of measuring the intensity of these phenomena, which has been the vain and foolish ambition of the psycho-physicists, we shall measure the useful effects of the acts of adaptation, and the value of the difficulties conquered by them; there is here a measure which is not arithmetical, but which permits a lineal seriation, a hierarchy of the acts and of different individuals judged according to their powers.

Questions of detail aside, if we seek to take into account the evolution of the whole, which we approve, we can assert that psychology, having become a science of action, takes on an altogether different attitude for pedagogy, for morals, and for scientific philosophy.

We have endeavored to perfect the procedure in the direct examination of the mental functions. For that purpose we make use of the new method, that of taking the level. It has the advantage as a clinical interrogatory of being constantly at our service instead of our being obliged to wait until the hazards of observation should put us in the presence of the signs of Kraepelin.

The interpretation of the results furnished by this examination is contained entirely in the two following laws:

1. The results obtained from the experimental standpoint are available for judging the intellectual faculties of a subject; the consideration of the residues will enable us to judge whether it is a question of demented person or a feeble-minded person.

2. The results obtained from the clinical standpoint are to be interpreted according to the intensity of the concomitant troubles: If one discovers a lowering of level, the question ought to be investigated whether or not there is sufficient excuse; if not, one will have to assume a real dementia.

Our method is eclectic. We do not refuse any way to make use of the signs furnished by different observers; we are convinced that all the signs ought to be of service; one should not neglect the stigmata of Magnan nor the signs of Kraepelin: circumstances determine which method will be more suitable.¹⁵

In the detailed clinical study of mentality cases the detection of other mental and physical anomalies than those indicated by the use of scale is valuable. Most work of this kind is at present the task of descriptive rather than of experimental psychopathology. The aim of such work is the diagnosis and prognosis of the clinical varieties of amentia such as cretinism, etc., of allied neuropathic states such as epilepsy, etc. However, the modern authorities on descriptive psychopathology agree in emphasizing the value of mental tests—particularly of serial tests—in the work of diagnosis and prognosis.

GENERAL PLAN OF ORTHOGENIC CASE STUDY

PSYCHOLOGICAL FACTORS:

Present Mental Condition:

Mental Growth Period
Distribution of Abilities
Capacities of Adjustment

{ Based upon the analysis of the
Binet record and of supplementary data.

Mental History:

Mental Heredity
Home Environment
Results of Educational Treatment

{ Based upon social and educational investigation, study of records, etc.

PHYSIOLOGICAL FACTORS:

Present Physical Condition:

Physical Growth Period
Stigmata; Special Defects
Anthropometric Indices

{ Based upon the analysis of
anthropometric measurements
and observations

Physical History:

Physical Heredity
Disease History
Results of Medical and Hygienic
Treatment

{ Based upon eugenic and ortho-
genic investigation, study of
records, etc.

¹⁵ Conclusion of last article in *L'Année Psychologique*, 1911.

SELECTED REFERENCES ON THE BINET-SIMON SCALE

I. FEEBLE-MINDEDNESS, DEMENTIA PRÆCOX, ETC.

Binet, A. and Simon, Th.: *The Intelligence of the Feeble-minded, including a Study of Their Language and a Comparison of Feeble-mindedness with Dementia. Selected Contributions to L'Année Psych.* Translated by E. S. Kite, Vineland, N. J., The Training School, 1916.

Cornell, W. S.: *Health and Medical Inspection of School Children.* Phila., Davis, 1912.

Goddard, H. H.: *Feeble-mindedness: Its Causes and Consequences.* The Macmillan Company, 1913.

Holmes, A.: *The Conservation of the Child.* Phila., London: Lippincott, 1912, pp. 199-226.

Huey, E. B.: *Backward and Feeble-minded Children.* Baltimore: Warwick & York, 1912, pp. 189-202.

Katzenellenbogen, E. W.: *A Critical Essay on Mental Tests in Their Relation to Epilepsy.* *Epilepsia*, 1913, 4: 130-173.

Knox, H. A.: *The Moron and the Study of Alien Defectives.* *J. Amer. Med. Assn.*, 1913, 60: 105-106.

Kuhlmann, F.: *The Binet-Simon Tests of Intelligence in Grading Feeble-minded Children.* *Jour. of Psycho-Asthenics*, 1916; 16, pp. 173-193.

McDonald, J. B.: *The Binet Tests in a Hospital for the Insane.* *Training School*, 1910, 7: 250-251.

Tredgold, A. F.: *Mental Deficiency (Amentia)*, Bailliere, Tindall, and Cox. London (2nd Ed. 1914).

Wallin, J. E. W.: *Eight Months of Psycho-clinical Research at the New Jersey State Village for Epileptics, with some Results from the Binet-Simon Testing.* *Epilepsia*, 1912, 3: 366-380.

White, W. A. and Jelliffe, S. E.: *The Modern Treatment of Nervous and Mental Diseases.* New York: Lea & Febiger, 1913. Vol. I, pp. 155-174.

II. DELINQUENCY

Goddard, H. H.: *The Criminal Imbecile.* The Macmillan Company, 1915.

Healy, William: *The Individual Delinquent.* Little, Brown and Co., 1915.

Irwin, E. A.: *Truancy: A Study of the Mental, Physical and Social Factors of the Problem of Non-Attendance at School.* Pub. Ed. Assoc. of the City of New York, 1915.

Spaulding, E. R.: *The Results of Mental and Physical Examination of Four Hundred Women Offenders.* *Jour. of Crim. Law and Criminology*, 1915, pp. 704-717.

Sullivan, W. C.: *La mesure du developpement intellectuel chez les jeunes delinquantes.* *L'Année Psychol.* 1912, 18: 341-361.

III. SCHOOL GRADING AND RETARDATION

Adler, Martha: *Mental Tests used as a Basis for the Classification of School Children.* *J. of Educ. Psychol.* 1914, 5: 22-28.

Burnham, W. H.: *Mental Hygiene in the School.* Washington, U. S. Bur. of Ed. 1913, Bull. 48: 67-68.

Gesell, A.: *Child Classifications and Child Hygiene*. Washington, U. S. Bur. of Ed. 1913, Bull. 48: 64-67.

Hicks, V. C.: The Value of the Binet Mental Age Tests for First Grade Entrants. *Jour. of Ed. Psych.* 1915, 6: 157-166.

Hoke, K. J.: *Placement of Children in the Elementary Grades*. Washington, Bureau of Education 1916, Bull. No. 3.

Winch, W. H.: Binet's Mental Tests: What They Are, and What We Can Do with Them. *Child-Study*, 1913, 6: 113-117.

IV. EUGENICS AND OTHER SOCIAL PROBLEMS

Davenport, C. B.: *Heredity in Relation to Eugenics*. New York: Holt, 1911, pp. 65-72.

Morse, J.: A Comparison of White and Colored Children Measured by the Binet Scale of Intelligence. 8. Ann. Meetg. Southn. Soc. of Philos. and Psychol. Baltimore, Md., 1913. Also *Pop. Sci. Mon.*, 1914, 84: 75-79.

Phillips, B. A.: *The Binet-Simon Tests Applied to Colored Children*. *Psych. Clin.*, 1914, pp. 190-196.

Pintner, R. and Patterson, D. G.: The Binet Scale and the Deaf Child. *J. of Ed. Psy.* 1915, 6: 201-210.

Rowe, E. C.: Five Hundred Forty-seven White and Two Hundred Sixty-eight Indian Children Tested by the Binet-Simon Tests. *Ped. Sem.* 1914, Vol. 21: 454-469.

Stern, W.: The Supernormal Child. *J. of Ed. Psy.* 1911, 2: 143-148, 181-190.

Strong, A. C.: Three Hundred and Fifty White and Colored Children Measured by the Binet-Simon Measuring Scale of Intelligence: A Comparative Study, 4th Intern. Congr. School Hyg., Buffalo, 1913 (rept. by Dr. J. Morse), also *Ped. Sem.* 1913, 20: 485-515.

Terman, L. M.: *The Mental Hygiene of Exceptional Children*. *Ped. Sem.* 1915, 22: 529-537.

Weirtrob, J. R.: The Influence of Environment on Mental Ability as Shown by the Binet Tests. *J. of Ed. Psy.* 1912, 3: 577-583.

V. ADMINISTRATION AND INTERPRETATION OF THE BINET-SIMON SCALE

Binet, A. and Simon, Th.: *The Development of Intelligence in Children*. Translated by E. S. Kite, Vineland, N. J. The Training School, 1916.

Binet, A. and Simon, Th.: *A Method of Measuring the Development of Intelligence in Young Children*. Translated by C. H. Town, Chicago Medical Book Company, 1915.

Bobertag, O.: *Über Intelligenzprüfungen (nach der Methode von Binet und Simon)*. *Zsch. für angew. Psych.* (A) 1911, 5: 105-203; (B) 1912, 6: 495-537.

Brigham, C. A.: *An Experimental Critique of The Binet-Simon Scale*. *J. of Ed. Psy.*, 1914, 5: 439-448.

Bronner, A. F.: Attitude as it Affects the Performance of Tests. *Psych. Rev.*, 1916, 23: 303-331.

Doll, E. A.: Prelim. Note on Diagnosis of Potential Feeble-mindedness. *Tr. Sch. Bull.*, 1916, 6: 54-61.

Ellis, F. W.: Report of Mental Examinations at Neurological Inst., N. Y. 5th and 6th Ann. Rpt. of N. Y. Probation and Protection Assn., 1913, 1914.

Goddard, H. H.: The Reliability of the Binet-Simon Measuring Scale of Intelligence. 4th. Intern. Congr. School Hyg., Buffalo, 1913.

Informal Conference on the Binet-Simon Scale: Some Suggestions and Recommendations. J. of Educ. Psychol. 1914, 5: 95-100.

Johnston, K. L.: M. Binet's Method for the Measurement of Intelligence. Some Results. J. of E. Ped. 1911, 1: 24-31, 148-151.

Kohs, S. C.: The Practicability of the Binet Scale and the Question of the Borderline Case. Chicago, House of Correction, Research Dept. 1915, Bull. No. 3.

Kuhlmann, F.: A Revision of the Binet-Simon System for Measuring the Intelligence of Children. Faribault, Minn.: J. Psycho-Asthen. No. 1 Monogr. Suppl. 1912, pp. 41.

Kuhlmann, F.: Degree of Mental Deficiency in Children as Expressed by the Relation of Age to Mental Age. J. Psycho-Asthen., 1913, 17: 132-144.

Melville, N. J.: An Organized Mental Survey in Philadelphia Special Classes. Psych. Clin. 1916, 9: 258-265.

Mentality Tests: A Symposium. J. of Ed. Psy. 1916, 7: 229-240, 278-293, 348-360.

Meumann, E.: Vorlesungen. Leipzig: Englemann 1913. Zehnte Vorlesung, pp. 94-299.

Porter, F. B.: Difficulties in the Interpretation of Mental Tests. Types and Examples. Psy. Clin. 1915, 9: 140-158, 167-180.

Rogers, A. L. and McIntyre, J. L.: The Measurement of Intelligence in Children by the Binet-Simon Scale. Brit. J. of Psyc., 1914, 7: 265-299.

Stern, W.: The Psychological Methods of Testing Intelligence. Translated by G. M. Whipple, Baltimore, 1913.

Terman, L. M.: The Measurement of Intelligence: An Explanation of and Complete Guide for the Use of the Stanford Revision and Extension of the Binet-Simon Scale. Boston: Houghton, Mifflin Co., 1916.

Thorndike, E. L.: The Significance of the Binet Mental Ages. Psy. Clin. 1914, 8: 185-189.

REFERENCES ON SUPPLEMENTARY DATA

Some of the works given below deal also with the Binet-Simon Scale.

Ayres, L. P.: The Identification of the Misfit Child. New York: Russell Sage Foundation, 1916.

Baldwin, B. T.: Physical Growth and School Progress. Washington: U. S. Bur. of Ed. Bull., 1914, No. 10.

Binet, A. and Simon, Th.: Mentally Defective Children. Translated by W. B. Drummond. New York: Longmans, Green and Co., 1914.

Crampton, C. Ward: Anatomical or Physiological Age versus Chronological Age. Ped. Sem., 1908, 15: 230-237.

Doll, E. A.: Anthropometry as an Aid to Mental Diagnosis. Vineland, N. J.: The Training School, 1916.

Franz, S. I.: Handbook of Mental Examination Methods. New York: J. of Nerv. and Ment. Dis. Pub. Co. 1912, pp. 165.

Healy, W. and Fernald, G. M.: Tests for Practical Mental Classification. Princeton: Psychological Monographs, Whole No. 55, 1911, pp. viii+54.

Holmes, A.: Classification of Clinical Cases. Psych. Clin., 1911, 5: 36-53

King, I.: Psychology of Child Development. University of Chicago Press, 1907, pp. 265.

Morgan, B. S.: The Backward Child. New York: G. P. Putnam's Sons, 1914.

Norsworthy, N.: Psychology of Mentally Deficient Children. New York: Archives of Psychology, 1906, pp. 111.

Sandiford, P.: The Mental and Physical Life of School Children. London: Longmans, Green, and Co., 1913, pp. 346.

Schmidt, C.: Standardization of Tests for Defective Children. Princeton: Psych. Mono. Whole No. 83, 1915, pp. 181.

Starch, D.: Educational Measurements. New York: The Macmillan Company, 1916, p. 202, tables.

Stern, W.: Differentielle Psychologie. Leipzig: J. A. Barth, 1911, pp. 503.

Whipple, G. M.: Manual of Mental and Physical Tests, Parts I and II. 2nd Ed. Baltimore: Warwick and York, 1915, pp. 712.

JOURNALS, MONOGRAPHS, AND REPORTS

L'Année psychologique, Paris.

Bulletin of the Committee on Provision for the Feeble-Minded, Philadelphia.

Child Study Reports, Chicago, Board of Education.

International Clinics, Philadelphia and London.

Journal of the American Institute of Criminal Law and Criminology, Chicago.

Journal of Educational Psychology, Baltimore (Educational Psychology Monographs).

Journal of Heredity, Washington, D. C.

Journal of Nervous and Mental Diseases, N. Y.

Journal of Psycho-Asthenics, Faribault, Minn.

New York Probation and Protective Association, Annual Reports.

Pedagogical Seminary, Worcester, Mass.

Psychological Bulletin, Princeton, N. J. (Psychological Monographs).

Psychological Clinic, Philadelphia.

Training School Bulletin, Vineland, N. J.

Ungraded, New York: Ungraded Teachers Assn.

BIBLIOGRAPHIES

Kohs, S.: The Binet-Simon Measuring Scale for Intelligence: An Annotated Bibliography. Baltimore: Warwick and York, 1914.

MacDonald, A.: Bibliography of Exceptional Children and Their Education. Washington: U. S. Bur. of Ed. Bull. 1912, No. 32.

GENERAL DIRECTIONS TO EXAMINERS

The examiner should attend in advance to all details that will reduce fatigue, discomfort, noise, or other disturbing factors. Use an isolated quiet room. Try to secure an assistant¹⁶ to record the answers verbatim. Except when a witness is necessary, allow no others to be present—if possible. If it is necessary to have a visitor or an official present, insist politely on absolute silence.

Meet the subject pleasantly. Ask him his name but as explained hereafter, do not ask his age until the end of the examination. With a young subject, tell him that you are going to play some games; with an older subject, that you are going to ask him some questions. In all cases tell the subject that you want him to do his best and that he is to guess rather than to give no answer. Before beginning the tests try to get one or two responses on matters of common interest, *e.g.*, base ball or a practical activity like sewing, carpentry, etc.

Try to find out through officials or *indirectly* from the subject whether he has been tested before; if so how long since; and what he knows about the test materials. If this is the subject's second experience with Binet tests, write an exponent 2 after the Binet Age on all records; then indicate on the back of the blank how long since he has been tested, what he appears to know about the tests, etc. Supplementary observations for which space is not provided on the record blank should be written on a memorandum sheet which should be fastened to the record blank. These records should be made by the assistant in such a way as not to attract the attention of the subject. The test record should never be visible to the subject.

Except when the subject is looking for encouragement, pay no particular attention to him so that he forgets himself in what

¹⁶ With clinical cases the presence of an assistant is sometimes undesirable.

he is doing. Never stare at him lest he feel that he is under observation. Sitting casually with the subject as if entertaining him, encourage him constantly throughout the examination. In a tactful way show an equal and lively satisfaction with *all efforts* except in the few instances noted in the directions where the examiner must be passive lest he mislead the subject and thus prevent him from doing better. If the subject fails to respond after slight urging, pass the matter by as easily as possible. Make him feel that you hope that he will succeed and that you are trying to discover his best—not tripping him up at his worst. “It is the business of the examiner to keep the subject in that state of mental exhilaration which enables him to do his best.”

Never criticise and do not make a lesson out of any test. For the time being, the pedagogical habit of mind must be laid aside. The object now is to judge the mental level of the subject, not to instruct him. His mind must not be guided or taught while he is doing the tests, just as one does not usually stop to instruct a friend while playing a game with him. Never attempt to “improve” or to discipline a subject during an examination, even if he openly refuses to respond. If a disciplinary situation should arise, this would, like the onset of any physical ailment, automatically terminate the examination.

Beware of the various pitfalls that await the beginner. In the first place, he is almost certain to array himself on the side of the subject and to declare in some instances that the test is not a fair one. In the comprehension tests and the like the beginner is tempted to complain that the language of the test is beyond the vocabulary of the subject. The examiner must remember that ability to respond to standardized formulæ and questions without supplementary demonstration or explanation, forms one of the most important elements in the complex mental processes being tested throughout the scale. Even if at first the subject misunderstands what he is to do, do not check him but watch for a possible clue in his reactions.

If the procedure in any test has been interrupted or you realize that you have unintentionally varied from the Uniform Method, mark that test *m* in the margin. If at the close of the examination you wish to make supplementary variations, keep a careful record of each variation and of its results. Variations referred to in the supplementary notes may be indicated by appropriate abbreviations placed in the margin; the results of such variations should be enclosed in parentheses on the record blank.

Mental hygiene demands that no sitting should last more than three-quarters of an hour with subjects who test at the level of later childhood or higher; nor more than a half an hour for those who test at lower levels. The Uniform Method, when used by a trained examiner with an assistant, should not exceed these time limits, which were adhered to by Binet in his own testing. If necessary, finish the testing in a later sitting.

The examiner should unobtrusively record his judgments +, —, ?+ or ?— (as illustrated in the Method) immediately after giving each test. These judgments should be reviewed later in conjunction with the Examination Notes. The answers on the Examination Notes should be compared with the examples of correct and incorrect responses contained in the Method.¹⁷ A study of these examples will show that correctness generally involves a comprehension of "the exact shade of meaning conveyed" by the formulæ (S. R.). The criterion is not, does the answer have perfect grammatical or logical form, but has the subject comprehended all that he is expected to grasp at the given level and has he responded correctly on the basis of such comprehension (G.). This criterion minimizes the effect of formal education.

Observe and record, as directed, the attitude of the subject towards the tests. Keep such notes as will aid in making a characterization of (1) general intelligence, (2) general behavior and disposition, and (3) general appearance.

¹⁷Doubtful responses should be scored in the light of the responses to adjacent trials and tests.

INSTRUCTIONS TO SCHOOL EXAMINERS

1. Report at the principal's office each day to get permission to begin testing. Be careful not to interrupt the work of the principal or the class teacher.

2. Ask for instruction as to signals for (a) fire drill, (b) recess, and (c) dismissal. Make sure that you understand how to carry out such instructions and see that you do so.

3. Accompany each pupil from the class room to the examining room and back again to the class room. Interrupt your testing to take the pupil back to his class so that he can get in line for recess and for dismissal unless special arrangements have been made.

4. Upon request show a given pupil's record blank to the principal or teacher. Under no circumstances offer a diagnosis of the case. A verified duplicate of each record should later be sent to the principal of the school.

STANDARD RECORD FORM AND DIRECTIONS FOR USING

The methods of gathering and assembling the data from the Binet-Simon tests and from supplementary sources are explained in the following directions for using the Standard Record Form. These directions are, for convenience, addressed to the examiners in the Philadelphia schools.

The Standard Record Form is reproduced at page 38 of Part I.¹⁸ Efficiency in using it should be acquired during demonstrations and practice work.

First Side (see Record), Summary of Binet Examination and of Supplementary Data

The first and third lines of this side and as far as practicable, the lines for recording *Supplementary Data* should be filled in

¹⁸ Also a specimen copy of the form is supplied with this manual for convenience in studying these directions.

No.
s of Examiner.

BINET-SIMON TESTS

Grouped Acc
Arranged for

III

ictures. Enumerates at least two
arts in 1 out of 3 Binet pictures.

Use E. N.* Mark trials under
Methods of Marking." [1]

urname (Stepfather?) (Use E.N.)

Nose . Eyes . Mouth. Shows ea.

If 2d chance, give last; then in-
st.) [3]

Digits† (Consult XVd first.) [1]

Sentence III† (Consult XVe first.)

VII

Higher Credit for IIIa. Mentions
characteristics, actions, etc., in 2 out
of 3 Binet pictures.

(Use E. N.* Mark trials under
"Methods of Marking.") [2]

3 Orders :|| Executes. (No help.) [3]

. R. Hand. . L. Ear. Shows each.
(No help; non-committal expression
if i.) [2]

† Stamps† Teach value of ea. kind if
nec. Watch 10". (No error.) [1]

† Colors. Names all. (No error) [4]

XII

a Charity=kindness/to unfortunates
giving/acts=aid to poor

Justice=rule/of law or of merit

Kindness=tender/acts or feelings

Defines or illus. meaning clearly. [2]

b 60 Words.† Watch 3'. (Use E.N.)

Score here.

c Six Line-pairs† . 4 . 5 . 6 [2]

d Higher Credit for Xd. (Use O.R.)

e Dissected Sen. 1' ea. . 1 . 2 . 3 [2]

IV

a Parallel Line-plates. Indicates the
longer line. (No hesitation or error)

. 1 . 2 . 3 [3]

(Non-committal expression)

b Sex (Mere echo?)

c Penknife . Key (different kinds)

. Penny, { knife, key, pennies } [3]

d 3 Digits.† (See XVd first.) [1]
Each test counts 0.2½ yr. as make-
up.

VIII

a . { Butterfly . } Wood . { Paper
Fly . Glass . } Cardboard
Real point of difference. (Encourage.

Use E.N.) [2 less *repetitions.]

b Drawings with Parts Missing

{ . Nose . Eyes . Mouth . Hands } [3]

c 20 to 1. Counts in 20 sec. { 1 error }

d 5 Digits† (See XVd first) [1]

e . Dwk. . Mo. . Dm. { 4 } . Yr. [4]

XV

a Highest Credit for IIIa.

Interprets situation depicted in, or
emotions suggested by 2 out of the
3 Binet pictures. (Use E.N.) [2]

b Problems . 1 Forest (hanged) . 2 Neigh

c Rimes { missed, artist, etc. } [3] (Us

d 7 Digits.† [1] Give Pd before any test

e Sentence XV.† [1] Give Pe before any t

*SEE EXAMINATION NOTES (E.

†Give all trials allowed in test directions, but do n

RECORD

ording to Final Revision by Binet and Simon, 1911.
Convenience of Examiners in Philadelphia Public Schools

V	VI
<p>. a Two Pairs of Weights. Indicates the heavier each time. [3 or more?] . 1 P & C . 2 H & S . 3 C & P (. 4 S & H . P & C etc.?) . b Square (Final copy on O.R.) . c 3 Cards. Joins diagonals in any way. (Non-committal expression if i.) . d 4 Pennies. Counts each with finger. . e Sentence V† (Consult XVe first.) [1]</p>	<p>. a . 1 Fork . 2 Table . 3 Chair . 4 Horse . 5 Mama. (No help.) Defines by use or action. (Insist. See IXa. Use E.N.) [3] . b Diamond (Final copy on O.R.) . c Chooses Prettier. . 1 . 2 . 3 [3] (Non-committal expression.) . d 13 Pennies. (See Vd first.) . e Morning or afternoon? (Echo?)</p>
IX	X
<p>. a Higher Credit for VIa. Uses synonym, describes, or classifies in one or more words. (Insist.) [3] . 1 . 2 . 3 . 4 . 5 (Use E.N.) . b Returns change, 6c from quarter [1] . c Comprehends. (Easy) . 1 . 2 . 3 [2] . d Coins, recognized. Bills, known [12] . e Months† Watch 15 sec. { 1 error. } Begins with any month. (No help.)</p>	<p>. a 5 Weights. Arranges in order. [2] . 1 (Use Code) . 2 . 3 Watch 3' . b Absurdities . 1 . 2 . 3 . 4 . 5 (E.N.) [3] . c Comprehends . 1 . 2 . 3 . 4 . 5 [3] . d 3 Words, 2 main clauses (See XIId.) . e Designs† (Out of sight till "Ready!" Watch 10". Use O.R.) [½]</p>

METHODS OF MARKING TRIALS AND TESTS

III a . Enumeration	. 1 . 2 . 3 [1] o! = no answer to Trial I.
VII a . Description	. 1 . 2 . 3 [2] i = incorrect or incomplete.
XV a . Interpretation } or Emotion }	. 1 . 2 . 3 [2] v = trial correct. + = gets v's indicated in [?] allowing { ? errors }
abor (dying) [2] (Use E.N.)	if no [?], gets any 1 trial allowing { ? }
e E.N.)	⊕ = see + for harder test in same series. = = fails later on 2d chance.

digits. Pronounce ½ sec. apart without rhythm, each set once. (No errors except in pronunciation.)
 test sentence. Stresses about ½" apart and with expression, each once.
 N.) OR ORIGINAL RECORDS (O.R.)
 not repeat the test, i.e., there is no second chance.

ORIGINA

- . Original Record X—Draws both designs from memory in pencil below after see

- . Vb Final copies
or of square or diamond
- . VIb with pen and ink here **27**

Writes in pencil sentence using

PHILADELPHI

- . Xd
or
- . XIId
Signature if possible **27**

RECC

ording AL RECORDS
Conve

ing them only once for 10"

. s T

h

.

(

. b S

. c 3

(

. d 4

. e 5

. a

i

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. b

. c

. d

. e

III

VI

X LA—MONEY—RIVER

abor

e E

dig

est

N.)

ot

before the examination by some official in charge of the subject; *e.g.*, his teacher. This blank is then to be known as the *original*. The other sides of the original are to be used by the examiner in the manner directed hereafter.

Date of Birth: Indicate by *C* or *W* over date of birth whether this is based on birth certificate or on word of parent or guardian. An error of one year vitiates the measure of mental retardation or acceleration, *i.e.*, the sub-age or super-age. The next three items should not be written in until the second and third sides of the record form have been verified—preferably under the direction of a consulting psychologist.

Age (Chronological or Life Age): See space provided at top of third side, for steps in calculation.

Binet Age: See directions for third side.

Sub-Age: A minus age difference, *i.e.*, when the Binet Age is less than the Life Age.

Super-Age: A plus age difference, *i.e.*, when the Binet Age is greater than the Life Age.

Handicaps: For explanation of terms that are not self-evident, see key to Supplementary Data below.

Room: Give room number.

Regular Grade: Kg., IA, IB, or the like.

Special Group: Og.A (Orthogenic Class, group A); Op. (Orthopedic Class); Oa. (Open Air); F. (English to Foreigners).

Name of Public School: Write first the name of the building where the pupil attends class; then if this is an annex, write after it the name of the main building.

District: Indicate the district where the main building is located.

General Attitude, etc.: Underscore the appropriate terms immediately on the close of the examination. Mentally active, *i.e.*, curious, self-critical, etc.

Remarks: Indicate any special attitudes, interruptions, or other disturbing factors which may have unduly influenced the results.

Passed at level of..... This line should be completed in accordance with the Orthogenic Table; but like the three items named above, should not be written in until the second and third sides of the record forms have been verified.

DIRECTIONS FOR RECORDING SUPPLEMENTARY DATA.

In order that the Binet Age may be properly interpreted a number of supplementary facts should be at hand. The supplementary data here called for should, as far as possible, be obtained from (1) registration card, (2) medical record, (3) monthly report. An interview with the class teacher at some convenient time may facilitate the obtaining of such data as have not already been supplied. Whenever a number of descriptive words are given, each word that applies to the pupil should be underscored; and if any one or more words apply with particular force, these may be doubly underscored.

LINE 1—Underscore:

Foreigner: Has not a fair command of English because of environment.

Temporarily handicapped: Has no lasting physical or mental defect but has fallen behind because of temporary illness, removal, or lack of educational opportunity, *e.g.*, living in the country.

Physically defective: Has some chronic physical defect which reacts on school ability, *e.g.*, anæmia.

Dull: Has good judgment but is slow in his work.

Incompetent: Is below the average in his judgment as well as in schooling. The actual degree of incompetency in children is best indicated by the Binet scale.

Ill-balanced: Morally defective, unstable in character, or in other ways shows signs of genuine or border-line insanity. The

abnormal, *i.e.*, the ill-balanced, subject should be distinguished from the subnormal, *i.e.*, the mentally deficient.

Delinquent: Is a disciplinary case, *e.g.*, a truant, etc.

Negligent: Is not a defective or disciplinary case, but indifferent, inattentive, etc.

Line 2: Insert after:

Race—words indicating the original stock of parents, *e.g.*, Scotch-Irish. The word American is not sufficiently definite for the purpose in view.

Parents' nativity—country in which parents were born.

Language usually spoken at home—that is the language usually spoken by the parents.

LINE 3: Should indicate whether or not the subject spent his early life in the country or in the city, whether in the United States or some foreign country, and up to what age, *e.g.*, for a foreign-born pupil Line 3 might read, "lived in country, in Italy till ten years old," or, in the case of native-born child, "lived in city, in Philadelphia, since birth."

LINE 4: The estimate of the language work should be based either on the teacher's judgment or on pedagogical scales. If desirable, two estimates may be inserted here, one of the oral language, one of the written. Regular schooling—applies to regular attendance in any grade above the kindergarten.

LINE 5: The number of years spent in each grade, counting terms A and B together as one grade, should be obtained whenever possible from the registration card. Every change in school should be indicated by a double bar, *e.g.*, grade 1 ? 1 || ½ indicates that in grade 1 the pupil spent two terms in one school and one term in another school. If a pupil is in a special class, the number of years spent there should be indicated after the name of the special class; and in the case of an orthogenic pupil, the group¹⁹

¹⁹ In the Philadelphia public schools, the mentally handicapped are in orthogenic classes and classified into three groups: A, incompetent or mentally deficient, B, backward or dull, C, temporarily handicapped or probable restoration case.

in which he was first placed should be written after the word *group*, then the length of time he remained in that group; if he was promoted or demoted to another group, the letter indicating the second group should be written in front of the next question mark, followed by the length of time spent in that group, etc., *e.g.*, A ? $\frac{1}{2}$; B ? $1\frac{1}{2}$ —indicates one term in Group A and three terms in group B. An attendance of less than three months in a given term should be ignored.

LINE 6: Age-grade retardation. Determine the average school grade of the subject's entire language work by the use of standardized scales, if possible, or otherwise by the judgment of school officials. Taking seven as the upper limit of age for the first grade, the difference between the subject's age and the upper limit of age for the grade indicated by the language work is the amount of age-grade retardation.

LINE 7: Consult school records and school officials. "Interrupted" refers to absence of a month at a time.

LINES 8 AND 9: Consult medical inspector's records.

LINE 10: Consult parent when possible. Stigmata—for an illuminating discussion of stigmata consult Montessori's "Pedagogical Anthropology."

Estimates made by Principal (P), Teacher (T), Medical Inspector (M), etc.,—indicate by letter over each column or beside each rating by whom said rating is made.

In estimating "standing," compare the pupil with the average members of his grade. G—Good, *i.e.*, above average; F—Fair or average; P—Poor, *i.e.*, below average.

Balance—See directions for Line 1. The other terms are self-explanatory. In estimating development compare the subject with average males or females of his chronological or life age, *e.g.*, "Physiological +" indicates more mature physically than the average of his or her age; "Physiological —" indicates less mature physically than average of his or her age; "Physiological 0" indi-

cates near the median, *i.e.*, neither clearly above nor below the average of his or her age in maturity as regards that trait.

The developmental levels may also be studied in terms of growth periods (see section on Evaluation, p. 9). Such estimates may then be recorded after each trait, *e.g.*, "Emotional L. I." indicates that the subject's emotional reactions resemble those of later infancy, that is, of a child of three or four.

Degree of physiological maturity is sometimes called physiological age. For further explanation see King, "The High School Age." For discussion of other developmental levels, see writings of B. T. Baldwin, J. E. W. Wallin, and others.

Supplementary Measurements: Optional.

Recommendations—to be made by the official designated.

NOTE: The detailed directions for using the second, third, and fourth sides of the record form during the examination are contained in the test directions in Part II.

Second Side—Test Record

As illustrated in Part II, the periods or record points indicate where the examiner should record his judgment of every trial and test given. Each abbreviation, etc., on this side is explained in the directions for the tests.

Third Side—Examination Notes

The required notes and other observations (see p. 31) may first be recorded on extra paper. Such paper should be headed "Memorandum Sheet" and filed inside the record blank. On the completed record blank every space provided on the third side for the tests given should be filled in. These trials and tests should be finally scored here as well as on the second side.

The rules for computing the Binet age, etc., have been given on pp. 9-10. "Difference," *i.e.*, age difference, should be marked — or +, see Sub-Age and Super-Age, p. 33. See also special note, "N. B." on p. 115.

Fourth Side—Original Records

The designs, Xb, should be drawn immediately here. The other tests should be done first on extra paper, *e.g.*, on back of "Memorandum Sheet."

UNIFORM PROCEDURE IN REGARD TO TEST ORDER

These rules embody the recommendations of the Informal Conference on the Binet-Simon Scale and provide a uniform objective procedure. The Standard Record Form and the Method are arranged to facilitate the application of these rules. For the principles upon which they were worked out, see page 4.

FIRST SEQUENCE OF TESTS

1. Begin with the pictures, page 44, Pt. II, Uniform Method. Then give the *a* test of the year just above that indicated by the results of the picture test.²⁰ (*See pp. 50-51.*)

2. Proceed with the *a* tests in succession as printed in the Method until the subject fails one of the *a* tests.²⁰ Then give the *b* test of the preceding year.

3. Proceed with the *b* tests in succession as long as the subject is successful. However, if he fails the first *b* test, proceed in reverse order until he passes one of the *b* tests.²⁰

4. As soon as you have in this way found the highest *b* test that the subject passes, proceed with the *c* test of the same year. Then apply rule 3 to the *c*, *d* and *e* series of tests.

SECOND SEQUENCE OF TESTS

5. Determine the working base—*i.e.*, the highest year containing no minus score.²¹ Starting at this working base, give in

²⁰ If XVa is passed, give XVb and then apply rule 4, etc. If any test in III is failed, give the next test of that year, applying rule 4 as far as the results permit.

²¹ *I.e.*—The highest year containing one or more plusses, but in which and below which there is no minus.

succession any *a* tests which have not yet been given or which have been failed through *absence of response*. Continue the *a* tests until two successive minuses have been recorded.²⁰ Proceed likewise with the *b* tests, etc.

THIRD SEQUENCE OF TESTS

6. Determine the working sub-base—*i.e.*, the year just preceding the highest year wherein no tests are scored minus. Starting at the working sub-base, proceed as in rule 5; continue, however, until two successive *years* of complete success and two successive *years* of complete failure have been recorded.²²

GENERAL RULES CONCERNING REPETITION

NOTE: Special exceptions to these rules are given in certain test directions.

1. Unless otherwise specified, each question or direction should be reiterated *once* in an encouraging manner provided the subject does not begin to respond within about five seconds.

2. A question should be reiterated twice *only provided* (*a*) that there has been interruption or (*b*) that the subject requests it.

3. After a question has been reiterated, the examiner should wait about half a minute for the subject to begin before giving the next question.

4. A question should not be reiterated because of incorrect response unless it is manifest that the subject did not *hear* what was said.

5. A second chance is given later only when the test has been scored minus through absence of response (see above). On second chance, observe rules 1-4.

²² If ten or more tests are passed above year IX, give the "adult" tests. (See Appendix.) Record these results on Fourth Side.

TEST MATERIALS AND GENERAL DIRECTIONS FOR USING

The present manual ²³ contains the printed materials—pictures, drawings, etc.—required for giving the tests.²⁴ In addition to these printed materials, the following articles are needed for the application of the scale:

(1) Watch showing seconds, preferably a football timer, noiseless (to be kept out of view at all times), VIId, VIIIc, IXe, Xe, XIIb, XIIe, XVc.

(2) Pen and ink, some unruled scratch paper (about 4" × 6"), Vb, VIb; pencil, Xb, Xd, XIId.

(3) Three one-cent stamps and 3 two-cent stamps (to be pasted in manual) VIId.

(4) Box (any small box, *e.g.*, a spectacle-mailing box used as a receptacle for articles 5 to 10 inclusive. Test articles 5–10 should always be kept in such a receptacle so as to be ready for use). Two extra chairs (one to be placed near the door), VIIb.

(5) Four pennies, Vd; 13 pennies, VIId; if possible a desk blotter to cover the 13 pennies and other coins mentioned below, which may thus be laid out ready for use.

(6) Two nickels, 2 dimes, a quarter, and the 13 pennies, IXb.

(7) A half dollar, a dollar bill, and one of each of the coins used above, IXd.

(8) Key (familiar kind), penny, penknife, IVc.

(9) Two visiting cards, one cut diagonally, Vc. Adult C.

(10) Set of weighted cubes.²⁵ (These may be obtained from C. H. Stoelting Co., 125 N. Green St., Chicago, Ill.) Va, Xa.

²³ For suggestions as to the mechanics of handling the manual during the testing, see page 8.

²⁴ J. B. Lippincott Company will furnish the Standard Record Forms for recording results.

²⁵ Binet used uniform pill boxes (packed with cotton or the like and weighted to meet the requirements of the tests). We have found that druggists cannot be relied upon to prepare such boxes. If the examiner wishes to use such, he should (1) prepare them himself, (2) paste down the cover so that none of the contents are lost, (3) mark on the bottom of each box the code letter indicated in our test directions, see Va.

SUMMARY OF GENERAL PROCEDURE

1. Do not attempt to apply a mentality scale until you have had specific training in its technique.

2. Do not begin to test a subject unless you have succeeded in getting him to appear at ease. Find some pleasant way of terminating a sitting if the subject appears not to be doing his best. Use every resource to secure his interest except severe reprimand or threat.

3. Do not let the subject wait between the tests or watch you recording. Keep him occupied all the time so that the examination does not become tedious. Do this even at the expense of more complete verbatim records.

4. Do not dismiss the subject even at the end of the time limit until you have looked over his record to be sure that it is complete for that sitting. As soon as he is dismissed, fill in such incomplete verbatim records as you can from memory, and the record of (1) General Attitude, and (2) Remarks.

5. Do not permit yourself to give the subject any clue as to the correct response or as to whether or not his response is satisfactory. Assume a kindly and encouraging manner throughout, thereby being perfectly non-committal.

6. Do not attempt to adapt or supplement the test instructions in any way. Remember that you are testing the ability to react to standardized formulæ. Foreign subjects should be tested with a standard translation. Remember, however, to adapt your *manner* to the needs of each subject, so that he will be at ease.

7. Do not allow yourself to be prejudiced by any information as to the age, position, or character of the subject. Consider him an x to be solved by means of the tests first—and then later by all available supplementary data.

8. Do not compute the Binet age, Sub-age, etc., until you have compared each response on the Examination Notes with the examples of correct and incorrect responses contained in the method.

9. Do not conclude that the Binet age is an exact expression of the mental level of the subject. Remember that the Binet age, Sub-age and Super-age are conventions adopted for practical purposes and must be interpreted in the light of the whole test record, of biological data, etc. None but specialists in juvenile mental and physical disorders should attempt to make a diagnosis of mental retardation.

10. Do not confuse the aims and technique of mentality testing with those of clinical or laboratory psychology. Standardized mentality testing is an invaluable preliminary to the more intensive study of certain cases. With immature subjects, *i.e.*, juvenile minds, the brief experimental probing used in applying mentality scales is often the only procedure that yields results of any value. Remember that the fundamental principle here is a standardization (1) of test conditions and (2) of judgments in scoring the responses.

PART II

UNIFORM METHOD

OF APPLYING

THE BINET-SIMON SCALE

(FINAL REVISION BY BINET AND SIMON, 1911)

WITH NOTES INDICATING

MODIFICATIONS FOUND IN

VARIOUS ADAPTATIONS

PICTURE TEST

IIIa PICTURES.

VIIa HIGHER CREDIT FOR IIIa.

XVa HIGHEST CREDIT FOR IIIa.

1. The examiner and the subject should be seated facing near each other, for example, at the corner of a table. The assistant and any witnesses should be seated back of the subject and as far away as is practicable. The examiner shows Plate IIIa1 (see opposite page) and says:—

“What is this?” (Repeat once if there is *no* answer.)

Do not direct attention to any particular object in the picture. Be sure that your whole manner is such as to encourage free and complete response. Accept the first answers without praise or comment and proceed with Plate IIIa2. Only if there is no response, or a response that is incorrect or incomplete for any age, say:—
“Tell me what you see there.” (Repeat once if there is *no* answer.)

If still there is no satisfactory response, proceed with Plate IIIa2.

Note: Some investigators, e.g., Terman, following Kuhlmann, allow such preliminary aid as “Show me the . . .” (naming some object in the picture).

44

METHOD OF MARKING CORRECT RESPONSES TO TRIAL IIIa1, ACCORDING TO DIFFERENT AGE STANDARDS

ON TEST RECORD. ON EXAMINATION NOTES.

IIIa · Enumeration	✓ 1	· IIIa [1] ✓ 1	“A man, rope.” (Any two or more parts enumerated.)
VIIa · Description	✓ 1	· VIIa [2] ✓ 1	“Pulling.” (Mentions characteristics or actions, whether or not he enumerates also.)
XVa · Interpretation	} ✓ 1	· XVa [2] ✓ 1	“A rag picker,” or “Some people moving.” (Gives any interpretation of the picture.)
Emotion			“A poor foreigner,” or “Man in trouble.” (Expresses any emotion suggested by picture.)

EXAMPLES OF CORRECT RESPONSES.



2. Show Plate IIIa2 (see opposite page) and proceed exactly as with the first picture except that now you are to encourage by your *manner* all efforts, whether right or wrong. If you have no recorder, begin now, while the subject is looking at the second picture, to record in full what he said about the first picture. Do this unobtrusively. Stop writing the moment the subject is ready for the next picture.

METHOD OF MARKING CORRECT RESPONSES TO IIIa2
ON TEST RECORD. ON EXAMINATION NOTES. EXAMPLES OF CORRECT RESPONSES.

IIIa · Enumeration	✓ 2	· IIIa [1] ✓ 2	"Chair, lady" (etc.).
VIIa · Description	✓ 2	· VIIa [2] ✓ 2	"Asleep in park" (etc.).
XVa · Interpretation or Emotion	✓ 2	· XVa [2] ✓ 2	"Praying" (etc.). "Poor creatures," or "Night-time" (etc.).

Observations of the subject's attitude in this and succeeding tests:

Record slight fatigue *	by "F" in margin of test blank.
" interest, though inability to respond	" "I" " " " "
" lack of interest or of attention	" "L" " " " "
" over-anxiety or over-willingness	" "O" " " " "
" unwillingness or negativism	" "U" " " " "
" timidity	" "T" " " " "

* If the subject appears to be markedly fatigued, the examination should be immediately discontinued for the time being.



3. Show Plate IIIa3 (opposite) and proceed exactly as with the second picture, except that if any verbal response is given, say a word of praise and proceed with the next test as directed below.

METHOD OF MARKING CORRECT RESPONSES TO TRIAL IIIa3		EXAMPLES OF CORRECT RESPONSES.	
ON TEST RECORD.	ON EXAMINATION NOTES.		
IIIa · Enumeration	✓ 3	· IIIa [1] ✓ 3	"Two tables" (etc.).
VIIa · Description	✓ 3	· VIIa [2] ✓ 3	"Looking out a window" (or in a glass, etc.).
XVa · Interpretation	$\left. \begin{array}{l} \text{or} \\ \text{Emotion} \end{array} \right\} \checkmark 3$	· XVa [2] ✓ 3	"A prisoner," or "Wants to get out" (etc.).
			"He's lonely" (etc.).

Note: Several authorities, *e.g.*, Titchener, consider that the first responses have the truest diagnostic value in field psychology. Further responses may be sought as supplementary variations to show the result of adaptation, but such results should be enclosed in parentheses and should not affect the Binet age.

Yerkes Point Scale (Y. P.) employs the original Binet pictures given in this manual but insists on limiting the formula to "Please look at this picture and tell me about it." On the other hand the Stanford revision (S. R.) substitutes a set of pictures not used in any other arrangement. It also employs different forms of questioning at each level, and thus discards what Binet and others have considered the most valuable diagnostic procedure in his series, namely, the presentation of the identical verbal situation to all subjects in connection with his pictures and the classification of the responses according to different age standards as exemplified above.

Goddard (G) and Kuhlmann (K) use the Jingleman Jack pictures (colored) for their cases, mostly low-grade defectives, but endeavor to preserve Binet's diagnostic principle of uniform questioning. Bobertag (B) has his own set of pictures. The writer and his student-assistants tried out several sets of pictures, colored and uncolored series, but decided to return to the original Binet pictures, because they were found to be the only ones thus far standardized for the testing of both high and low grade cases.



EXAMPLES OF SCORING THE PICTURE TEST AND OF APPLYING THE RULES FOR TEST ORDER

IIIa — Enumeration O 1 1 2 1 3 [1] These markings show that with the first picture there was no positive verbal response, *e.g.*, the subject merely pointed, refused to answer, etc.; that with the second and third pictures there were incorrect or incomplete answers, *e.g.*, "A picture," or "A man."

VIIa — Description . 1 . 2 . 3 [2]

XVa — Interpretation { . 1 . 2 . 3 [2]

 or

 Emotion

In order that the test be scored plus at IIIa, at least one trial [1] must be marked ✓.—*i.e.*, must meet the standard for IIIa credit stated on the Test Record and illustrated above. Hence in this case the test is scored: — at IIIa, VIIa, and XVa on Test Record and on Examination Notes. In this case give test IIb next. Since the failure above indicated is due to incorrect responses and not to absence of response, there can be no second chance.

IIIa + Enumeration O 1 1 2 ✓ 3 [1] These markings show that there was no response to the first picture, that two or more parts were not enumerated in the second picture, but that they were in the third.

VIIa — Description . 1 . 2 . 3 [2]

XVa — Interpretation { . 1 . 2 . 3 [2]

 or

 Emotion

Hence the test is scored: + at IIIa and — at VIIa and XVa on Test Record and on Examination Notes. The subject therefore passes IIIa as best credit. In such a case give test IVa next as indicated in rule 1. If he passes IVa, then give Va, but if he fails IVa go back to IIIb as indicated in rule 2. See page 38.

IIIa ⊕ Enumeration	✓ 1	▽ 2	▽ 3	[1]	These markings show that there was a response by enumeration to the first picture, and by description to the second and third pictures. ▽ indicates "See higher marking for same trial." ⊕ indicates "See higher credit for same test."
VIIa + Description	· 1	✓ 2	✓ 3	[2]	
XVa - Interpretation or Emotion	· 1	· 2	· 3	[2]	

Hence the test is scored: ⊕ at IIIa, + at VIIa, and - at XVa on Test Record and on Examination Notes. The subject therefore passes VIIa as best credit. Hence give VIIIa next. If the subject passes VIIIa, give IXa.

If he fails VIIIa, give VIIb.

IIIa ⊕ Enumeration	▽ 1	▽ 2	▽ 3	[1]	These markings indicate that an interpretation of the first picture or some emotion suggested by it was expressed, that description was given in the case of the second picture and that an interpretation or some emotion was expressed in the case of the third picture.
VIIa ⊕ Description	▽ 1	✓ 2	▽ 3	[2]	
XVa + Interpretation or Emotion	✓ 1	· 2	✓ 3	[2]	

Hence the test is scored: ⊕ at IIIa, ⊕ at VIIa and + at XVa on Test Record and on Examination Notes. As the subject passes XVa, give XVb. See page 38.

IVa.	
Parallel Line-plates. Indicates the longer line. (No hesitation or error)	3
1	2

[3]

(Non-committal expression)

1. The examiner shows Plate IVa1 (opposite) and says:

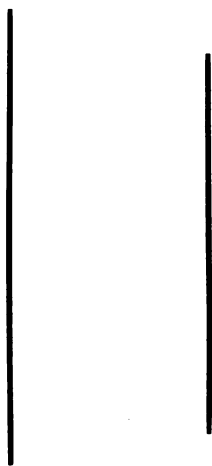
"You see these lines. Tell me which is the longer." (Repeat once, if necessary.)

The subject is allowed as much time as he wishes to look at the lines but if there is hesitation in the process of indicating the longer line, even though the subject finally does indicate it, the trial is marked i. If trial 1 is marked ✓, proceed immediately with trial 2 (Plate IVa2), but if it is scored O or i, proceed immediately with test IIIf. As indicated on the record blank, remain non-committal whether the response is correct or incorrect.

1

2

2. Show Plate IVa2 (opposite) and proceed as with the first plate.
If this trial is marked ✓, proceed immediately with trial 3; but if marked ○ or i, proceed immediately with test IIIb.



3. Proceed exactly as before.
If trial 3 is also marked \checkmark , the test is scored +, and we proceed immediately with test Va; but if marked \circ or \cdot , proceed immediately with test IIIb.
If there has been an incorrect response on any trial, the test is scored minus, and no second chance is allowed. If, however, the test is failed through lack of response, a second chance should be given later.
In order that the test be scored plus, the subject should get all three trials right on the first chance or all three right on the second chance.

Note: Binet, in 1911, mentions only one trial, but the procedure required with the pair of weights (Va) is interpreted to cover this test also. Y. P. gives but two trials and requires that both be correct. S. R. adds "Put your finger on the longest one," or "Show me which line is the biggest," and with K. credits five out of six trials. Such supplementary variations, if employed as a third chance, should, as usual, be scored (+) or (-).

IIIa ⊕ Enumeration ✓ 1 ∇ 2 ∇ 3 [1]
 VIIa + Description . 1 ✓ 2 ✓ 3 [2]
 XVa — Interpretation } . 1 . 2 . 3 [2]
 or
 Emotion

These markings show that there was a response by enumeration to the first picture, and by description to the second and third pictures. ∇ indicates "See higher marking for same trial." ⊕ indicates "See higher credit for same test."

Hence the test is scored: ⊕ at IIIa, + at VIIa, and — at XVa on Test Record and on Examination Notes. The subject therefore passes VIIa as best credit. Hence give VIIIa next. If the subject passes VIIIa, give IXa. If he fails VIIIa, give VIIb.

IIIa ⊕ Enumeration ∇ 1 ∇ 2 ∇ 3 [1]
 VIIa ⊕ Description ∇ 1 ✓ 2 ∇ 3 [2]

These markings indicate that an interpretation of the first picture or some emotion suggested by it was expressed, that description was given in the case of the second picture and that an interpretation or some emotion was expressed in the case of the third picture.

XVa + Interpretation } ✓ 1 . 2 . ✓ 3 [2]
 or
 Emotion

Hence the test is scored: ⊕ at IIIa, ⊕ at VIIa and + at XVa on Test Record and on Examination Notes. As the subject passes XVa, give XVb. See page 38.

Two Pairs of Weights. Indicates the heavier each time. [3 or more.]

1 P & C * 2 H & S 3 C & P (4 S & H 5 P & C), etc.

1. Place before the subject the two weights, P and C (weighing respectively 3 and 12 gm.) with a distance of two or three inches between them, block P (the lighter) at the subject's left. (Place the blocks with the letters down.) The examiner says:

"You see these blocks. Tell me which is the heavier."

If, after weighing the blocks in any way he wishes, the subject indicates the heavier block (C), the trial is marked ✓ and we proceed immediately with trial 2. However, if the subject indicates either of the blocks without actually weighing them both, the examiner, being careful not to *show* by gesture or in any other manner what is meant, says:

"No, that is not the way. You must take the blocks in your hand and weigh them."

If the subject appears not to understand what is meant, the test is now discontinued, but later a second chance is given in case the trial was marked O.

2. Place before the subject the two blocks H and S (weighing respectively 15 and 6 gm.), block H (the heavier) at subject's left. (Keep the letters face down.) Proceed exactly as with trial 1. If trial 2 is marked i, the test is scored minus and there is no second chance. If trials 1 and 2 have been marked ✓, we proceed immediately with trial 3.
3. Proceed with the same blocks and the same method as in trial 1, except that the blocks are interchanged. (Block C, the heavier, at the subject's left.)

In order that the test be scored plus, there must be three successful trials on the first chance or three successful trials on the second chance. If the subject indicates the wrong block on any trial, the test is scored minus.

As indicated on the record blank (4 S & H; and 5 P & C, etc.), further trials may be given until the examiner is convinced that the correct responses are due to judgment and not to coincidence.

* Note: The following code is used to indicate the blocks:

P	S	Y	C	H	(E)
3	6	9	12	15	(18)

Binet allows that in case it is impossible to get a 3 gm. weight, the 6 and 15 gm. weights (S & H) may be used in place of the 3 and 12 gm. weights, and that the 18 and 9 gm. ones (E & Y) may be substituted for the second pair of weights.

N. B. BE SURE TO KEEP THE LETTERS FACE DOWN THROUGHOUT.

S. R. and K. allow illustrating by lifting with one hand, first one box, then the other, a few inches from the table. Binet and Y. P. absolutely prohibit such demonstration.

Via.

1 Fork . 2 Table . 3 Chair . 4 Horse . 5 Mama (No help).

Defines by use or action. (Insist. See IXa. Use E. N.) [3]

Follow the directions given under IXa.

If on three or more of the five questions the subject defines by use or action (see examples below), the test is scored plus at VIa and minus at IXa.

METHOD OF MARKING DEFINITIONS BY USE OR ACTION

vi 1. Fork. . . . "To eat."

vi 2. Table. . . . "Where we eat."

vi 3. Chair. . . . "You're sitting on it."

vi 4. Horse. . . . "Pulls wagons."

vi 5. Mama. . . . "Sends you errands."

If in the case of three or more questions, the subject uses synonym, describes, or classifies (for examples see IXa), even if he mentions use as well, the test is scored + at IX. Mark each trial O, i, vi, or ix on Examination Notes.

Note: Y. P. uses *spoon*, *chair*, *horse*, *baby*. S. R. omits *mama*, adds *pencil*, *doll*; credits four out of six, and then places the test at V, using a new set of words at VIII.

VIIa.

Higher credit for IIIa. Mentions characteristics, actions, etc., in two out of three Binet pictures, even though he enumerates as well. (See IIIa and XVa. Mark trials under Methods of Marking.)

As indicated under the directions for the picture test (see IIIa), VIIa is not a separate test from IIIa or XVa, but merely a statement of one of the standards by which the answers in the picture test are classified. Hence when we reach this point on the record blank, we simply observe the score already recorded here and proceed with the next test in accordance with the rules of test order.

2. Show Plate IVa2 (opposite) and proceed as with the first plate.
If this trial is marked ✓, proceed immediately with trial 3; but if marked O or i, proceed immediately with test IIIb.

1

2

3. Proceed exactly as before.
If trial 3 is also marked \checkmark , the test is scored +, and we proceed immediately with test Va; but if marked \circ or \perp , proceed immediately with test IIIb.
If there has been an incorrect response on any trial, the test is scored minus, and no second chance is allowed. If, however, the test is failed through lack of response, a second chance should be given later.
In order that the test be scored plus, the subject should get all three trials right on the first chance or all three right on the second chance.

Note: Binet, in 1911, mentions only one trial, but the procedure required with the pair of weights (Va) is interpreted to cover this test also. Y. P. gives but two trials and requires that both be correct. S. R. adds "Put your finger on the longest one," or "Show me which line is the biggest," and with K. credits five out of six trials. Such supplementary variations, if employed as a third chance, should, as usual, be scored (+) or (-).

1

2

Two Pairs of Weights. Indicates the heavier each time. [3 or more.]

· 1 P & C · 2 H & S · 3 C & P (4 S & H · 5 P & C), etc.

1. Place before the subject the two weights, P and C (weighing respectively 3 and 12 gm.) with a distance of two or three inches between them, block P (the lighter) at the subject's left. (Place the blocks with the letters down.) The examiner says:

"You see these blocks. Tell me which is the heavier."

If, after weighing the blocks in any way he wishes, the subject indicates the heavier block (C), the trial is marked ✓ and we proceed immediately with trial 2. However, if the subject indicates either of the blocks without actually weighing them both, the examiner, being careful not to *show* by gesture or in any other manner what is meant, says:

"No, that is not the way. You must take the blocks in your hand and weigh them."

If the subject appears not to understand what is meant, the test is now discontinued, but later a second chance is given in case the trial was marked O.

2. Place before the subject the two blocks H and S (weighing respectively 15 and 6 gm.), block H (the heavier) at subject's left. (Keep the letters face down.) Proceed exactly as with trial 1. If trial 2 is marked i, the test is scored minus and there is no second chance. If trials 1 and 2 have been marked ✓, we proceed immediately with trial 3.
3. Proceed with the same blocks and the same method as in trial 1, except that the blocks are interchanged. (Block C, the heavier, at the subject's left.)

In order that the test be scored plus, there must be three successful trials on the first chance or three successful trials on the second chance. If the subject indicates the wrong block on any trial, the test is scored minus.

As indicated on the record blank (4 S & H; and 5 P & C, etc.), further trials may be given until the examiner is convinced that the correct responses are due to judgment and not to coincidence.

* Note: The following code is used to indicate the blocks:

P	S	Y	C	H	(E)
3	6	9	12	15	(18)

Binet allows that in case it is impossible to get a 3 gm. weight, the 6 and 15 gm. weights (S & H) may be used in place of the 3 and 12 gm. weights, and that the 18 and 9 gm. ones (E & Y) may be substituted for the second pair of weights.

N. B. BE SURE TO KEEP THE LETTERS FACE DOWN THROUGHOUT.

S. R. and K. allow illustrating by lifting with one hand, first one box, then the other, a few inches from the table.

Binet and Y. P. absolutely prohibit such demonstration.

Via.

1 Fork . 2 Table . 3 Chair . 4 Horse . 5 Mama (No help).

Defines by use or action. (Insist. See IXa. Use E. N.) [3]

Follow the directions given under IXa.

If on three or more of the five questions the subject defines by use or action (see examples below), the test is scored plus at VIa and minus at IXa.

METHOD OF MARKING DEFINITIONS BY USE OR ACTION

vi 1. Fork. . . . "To eat."

vi 2. Table. . . . "Where we eat."

vi 3. Chair. . . . "You're sitting on it."

vi 4. Horse. . . . "Pulls wagons."

vi 5. Mama. . . . "Sends you errands."

If in the case of three or more questions, the subject uses synonym, describes, or classifies (for examples see IXa), even if he mentions use as well, the test is scored + at IX. Mark each trial O, i, vi, or ix on Examination Notes.

Note: Y. P. uses *spoon*, *chair*, *horse*, *baby*. S. R. omits *mama*, adds *pencil*, *doll*; credits four out of six, and then places the test at V, using a new set of words at VIII.

VIIa.

Higher credit for IIIa. Mentions characteristics, actions, etc., in two out of three Binet pictures, even though he enumerates as well. (See IIIa and XVa. Mark trials under Methods of Marking.)

As indicated under the directions for the picture test (see IIIa), VIIa is not a separate test from IIIa or XVa, but merely a statement of one of the standards by which the answers in the picture test are classified. Hence when we reach this point on the record blank, we simply observe the score already recorded here and proceed with the next test in accordance with the rules of test order.

VIIIa.

Butterfly
Fly

Wood
Glass

Paper
Cardboard *

Real point of difference. (Encourage. Use E. N.) 2 less repetitions.

The examiner says (in an encouraging manner, repeating the formula once, if necessary):

1. "You have seen butterflies. You know what they are? And flies. You know them also. Are they alike? In what way are they not alike?" (If necessary, add "Tell me what you mean," or "Explain.")

Record the subject's answer word for word on the Examination Notes.

2. "You know what wood is? And glass? Are they alike? In what way are they not alike?" (If necessary, repeat etc., as above.)

3. Similar questions are asked concerning paper and cardboard.*

Any real, though trivial, point of difference is counted correct. However, if a given point of difference has been credited as distinguishing one pair of objects, the same point of difference cannot be credited again if repeated for another pair of objects. In this event say:

"In what other way are they not alike?"

In order that the test be scored plus, two parts of the test must be credited, remembering not to credit the same point of difference twice (i.e., 2, less repetitions).

Correct: "Butterfly is prettier" (or "A fly is black," etc.).

"You chop wood" (or "Glass cuts you," etc.).

"Paper is used in writing" (or "Cardboard does not tear," etc.).

Note: Y. P. substitutes apple and banana for the first pair. S. R. substitutes stone and egg for the third pair and then places the test at VII.

* Many examiners substitute the word cloth for cardboard.

IXa.

Higher credit for test VIa. Uses synonym; describes or classifies in one or more words. (Insist.)
 . 1 . 2 . 3 . 4 . 5 (Use E. N.)

The examiner says:

1. "What is a fork?"

If in the case of this or any following question, the subject fails to respond even after the question has been reiterated, or merely repeats the word to be defined (*i.e.*, "It is a fork"), or says "I don't know," etc., the examiner insists and says: "You know what a is; tell me, what is a?"

This may be repeated but no other words may be used.

Wait for the subject's answer; accept it in a non-committal manner; and withhold comment even if the subject merely says, "It is a thing" (see VIa). Whether or not there has been any response within a minute, give the second question:

2. "What is a table?" (Proceed exactly as with question one.) 3. "What is a chair?" 4. "What is a horse?"

5. "What is a mama?"
 If in the case of three or more questions, the subject uses a possible synonymous, descriptive, or generic expression of one or more words (see examples below), even if he mentions use as well, the test is scored + at IXa, and ⊕ at VIa. If not credited at IXa, see VIa.

METHOD OF MARKING DEFINITIONS

BY SYNONYMOUS,		OR GENERIC EXPRESSION.	
DESCRIPTIVE,			
ix 1. Fork	"pitchfork"	"something" ("something for eating")	
ix 2. Table	"board"	"a thing"	
ix 3. Chair	"a seat"	"furniture"	
ix 4. Horse	"meat"	"animal"	
ix 5. Mama	"mother"	"she is feminine gender"	

Note: Single words that may be synonymous, descriptive, or expletive, like mother, good, silver, wood, thing, something, etc., are scored by some investigators at VIa; while they score words that are distinctly classifications, like object, article, instrument, etc., at IXa. Owing to the wide differences in practice here, it seems best to follow strictly Binet in crediting at IX any attempt at definition that is not confined to use or action.

It is of the utmost importance that the examiner record accurately every word the subject uses in answering and that later he compare all answers with the examples given above and under VIa. Special markings vi or ix should be written to the left of the five words on the Examination Notes, unless O or i.

S. R. uses balloon, tiger, football, soldier, automobile, battleship, potato, and store; and then places the test at VIII.

Xa.

5 Weights. Arranges in order. [2] (Use code) Watch, 3'.

. 1

. 2

. 3

1. The examiner, who should be facing the subject as usual, places the five cubes, marked respectively P, S, Y, C, H, in a group (not a pile) before the subject. The weights should not be arranged in any particular order.

The examiner says:

"These blocks which you see here do not all weigh alike. Some are heavy and some are light. Place the heaviest one here (pointing to a spot near the subject's left) and at its side the one which is a little less heavy, then the one a little less heavy, then the one still a little less heavy, and finally the lightest of all. (Continue to point each time to a spot nearer the subject's right). If there is no response, repeat the above directions.

As soon as the subject begins to work, the examiner and the assistant look at their watches unobtrusively. At the end of trial 1, the examiner grasps the blocks as arranged, turns them up in his hand so that he can read the letters on the bottom, and records on the record blank the five letters as they appear, beginning at the subject's left.

If the trial is correct, the letters should spell P S Y C H (or S Y C H E).*

2. After the record has been made, the weights are mixed together as before and the examiner says, **"Now, do it again."**

3. The second arrangement is again recorded and trial 3 is given exactly as trial 2.

* See footnote to Va.

In order that the test be scored plus, two trials must be correct within three minutes of actual work. If over 3 minutes, record time and score ? + if two trials are correct.

N. B. Observe the subject's method of procedure and record absurd moves by ! on record blank.
Note: S. R. places this test at IX.

XIIa.

Charity = Kindness/to unfortunates.

Giving/alms, aid to the poor.

Justice = Rule/of law or merit.

Kindness = Tender/acts or feelings.

Defines or illustrates meaning clearly. (Use E. N.) [2]

The examiner says:

1. "What is charity?" (If necessary, insist "You know what charity is. Tell me what is charity.") If he says, "love" or "giving help," etc., say, "Tell me what you mean" or "Explain."

The answer should contain two ideas in order to be marked ✓; namely (1) that of unfortunates and (2) that of kindness shown them.

Examples of correct responses: "Giving alms" contains the two ideas because the word alms means help given to unfortunates. In order that the trial be scored plus, the subject must show that he has in mind the two ideas, even though he uses different words. The response: "Kindness to somebody," would be marked i, because "somebody" is not equivalent to "poor" or "unfortunate." (In this case repeat, if necessary, "Tell me what you mean" or "Explain.")

The subject may express his meaning by giving an example, e.g., "When you give poor people some money," but the examiner must *not* ask for an example.

2. "What is justice?" (If necessary, insist, etc.) If he says "a judge" say, "Tell me another meaning of justice." The definition of "justice" should contain the idea of being ruled or protected by law or being treated according to one's merits. "When you punish wicked people" is an acceptable definition.

3. "What is kindness?" If he says "charity," say, "Tell me another meaning of kindness." The definition of "kindness" should express the idea of tender acts or of fondness or affection (tender feelings). "When you share something with your friends," and "When you are polite to others," are illustrations of kindness.

Note: Repetition of the word to be defined does not of course count as one of the two ideas necessary to each definition, *e.g.*, "Kindness to animals," does not count even as one of the required ideas.

In order that the test be scored plus, two definitions must be correct.

Note: Y. P. substitutes *obedience for justice*. S. R. omits *kindness* and adds *pity, revenge, envy*; crediting three out of five.

XVa.

Highest credit for IIIa. Interprets situation depicted in or emotions suggested by two out of the three Binet pictures. (Use E. N.) [2]

See directions under IIIa. XVa is not a distinct test but is only the name given to the highest standard by which we measure the picture test. See further explanation of this under VIIa.

"B" TESTS

See opposite page

METHOD OF RECORDING CHANGE IN SUBJECT'S MENTAL ATTITUDE

- ♀ Both the examiner and the assistant should make the fullest possible notes of the subject's attitude. These notes should be made on the Memorandum Sheet and should be completed immediately at the close of the sitting. Remember to observe the subject's attitude throughout. Record change of attitude by writing in the margin an abbreviation for the new attitude observed.

Record slight fatigue* by "F" in margin of test blank.

" interest, though inability to respond	" " " " "
" lack of interest or of attention	" " " " "
" over-anxiety or over-willingness	" " " " "
" unwillingness or negativism†	" " " " "
" timidity‡	" " " " "

* Signs of marked fatigue should terminate the examination sitting.

† Continued unwillingness should terminate the examination sitting.

‡ Other attitudes, *e.g.*, suspiciousness, complacency, etc., may be recorded in a similar manner.

IIIb.

Surname. (Stepfather?) (Use E. N.)

5 The examiner says:

"What is your name?"

If the subject gives only his first name or middle name or both, the last name is insisted upon. Thus:

"Roger?"; **"And then what?"**; **"Roger what?"**; **"What is your last name?"**; **"Your father's name is"**
or **"Is your name Roger Jones?"** (using some other name than his own).

Record on the Examination Notes what the subject gives as his last name. If it is different from the one under which he is entered, it is possibly his stepfather's name. The examiner should try to find out if the name given was ever in the family. If so, the test is scored +; no attention should be given to the first name except as indicated above.

IVb.

Sex (Mere echo?)

5 The examiner says:

"Are you a little boy or a little girl?" *

If the answer appears to be mere thoughtless repetition of the word "boy" or "girl," *i.e.*, a mere echo, or if for any other reason the test would be marked 1, it is necessary to ask two distinct questions:

"Are you a little girl?" and **"Are you a little boy?"** or **"Well, what are you?"**

If still in doubt as to the correctness of the answer, reverse the order of the questions when giving a second chance later.

HOWEVER, TAKE CARE NOT TO CONFUSE THE SUBJECT.

* In testing adults, **"Are you a man or woman?"**

Vb.

Square (Final copy on O. R.).

(See Original Records, Vb. Final copies of square in ink here.)

Show Plate Vb (opposite). Hand the subject pen and ink and Memorandum Sheet, then say:

"You see this (pointing to the square), **I want you to make one just like it. Make it right here** (showing where it is to be drawn on the Memorandum Sheet). **I know you can do it nicely. Now go ahead."**

When he has finished, say:

"Now do it again here (pointing to the place on the record blank), **making it exactly like this**" (pointing to the printed square). If necessary, repeat this latter direction.

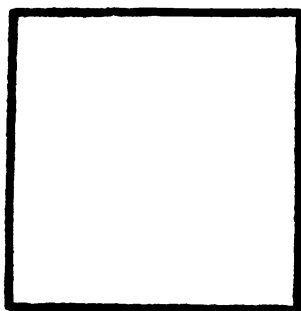
If the copy of the square is evidently as good as those shown in the upper line of the scale plate, see page 130, score + and proceed with test VIIb. If in doubt as to scoring the copy of either figure, require the subject to make two other copies on the blank, if possible, or on a sheet to be fastened to the blank.

Note: Binet insists that the copy be done in ink. G., K., and other American adapters use pencil.

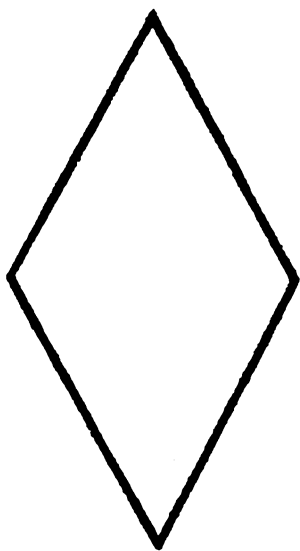
8 If the ink copy is unsatisfactory or doubtful, have the subject copy the square in pencil on scratch paper and finally on the record blank, if space permits. Score such pencil copy ?+ or ?- . Y. P. uses pencil and calls for equality either of lines or of angles for one point credit. S. R. also uses pencil and then places the test at IV.

N. B. While the subject is drawing the square and the diamond, the assistant should prepare for the three orders test (VIIb) by opening one of the doors of the room (or of a closet) a few inches and placing a chair near the door upon which he puts a box. Meanwhile the examiner should make sure that he has a key at hand and should refresh himself on the directions until he can give them exactly from memory.

The examiner or assistant should be careful in making these arrangements that the attention of the subject is not distracted from his drawing.



† (opposite), Face lacking mouth, and say:
this picture? ”
th Plate VIIIb1.



4. Show Plate VIIIb4 (opposite), Body lacking arms, and say:

“What is missing in this picture?”

Correct responses—“arm” or “arms,” “hand” or “hands,” “finger” or “fingers.”

If three trials have been correct, the test is scored plus, and we proceed with the next test. If the test is scored minus through absence of response, we proceed immediately with the next test required by the rules of test order and later repeat this entire test as a second chance. If, however, two or more trials are marked i, immediately show those plates again, following the same procedure as before.

Note: Y. P. uses “What is missing in this face?” S. R. places this material at VI, using (1) a long formula and (2) if O or i, point and say, “See the . . . is gone”; then with the second drawing merely “What is left out of this face?”



Returns change, 6c from quarter. [1]

The blocks and the following change piles are laid out on the table in front of the subject: 13 pennies, 2 nickels, 2 dimes.

The examiner says:

"Would you like to play store? You will be the storekeeper. Here is the money for you to use in making change for your customers (pointing to the money). Here are the things for you to sell (pointing). They are blocks. I shall buy this block. I will pay you six cents for it. Would you like to play? I wish to spend six cents. (Hand the subject a quarter.) Now give me the change." (Hold out your hand to receive the change.)

In order that the test be scored plus, the subject must hand the examiner 19c change.

S. R. substitutes three problems in mental arithmetic for the above, 4c change from 10c, 12c from 15c, 4c from 25c; and credits 2 out of 3.

Xb.

Absurdities -1 -2 -3 -4 -5 (E. N.) [3]

3 The examiner says:

"I am going to read you some sentences in which there is something foolish. Listen carefully and tell me every time what it is that is foolish."

Read each sentence carefully and in an expressive tone. Immediately afterwards, in a playful tone (p. t.) say:

"What is foolish in that?"

The sentence and the above question may be repeated and also the formulæ, "Tell me what you mean" or "Explain," but that is all. Record the answers in full on the Examination Notes.

The questions are as follows:

1. **"An unlucky bicycle rider fell on his head and was killed instantly. He was taken to a hospital and they fear he will not get well. (p. t.) What is foolish in that?"**

Correct: "He's dead already" (etc.). Incorrect: "Hospital. (Explain.) Get a doctor."

2. **"I have three brothers, Paul, Ernest, and myself. (p. t.) What is foolish in that?"**

Correct: "Myself. (Explain.) You've two brothers" (etc.). Incorrect: "You should say your own name."

Note: Female examiners may say: **"I have three sisters, Jane, Mary, and myself."**

3. "The body of an unlucky young girl was found yesterday, cut in eighteen pieces. It is thought that she killed herself."*

Correct: "She could not do it herself" (etc.). Incorrect: "Foolish to think. (Explain.) They don't know."

4. "There was a railroad accident yesterday, but it was not a serious one. The number killed was only forty-eight." Correct: "Forty-eight isn't serious in war times" (etc.). Incorrect: "The signals were wrong."

5. "Some one said, 'If I ever grow desperate and kill myself, I shall not choose Friday, because Friday is an unlucky day and might bring me bad luck.'"

Correct: "What's the difference if he's dead?" (etc.). Incorrect: "He might get caught. (Explain.) He'd be arrested."

In order that the test be scored plus, three of the trials must be correct.

Note: Y. P. uses sentences 1 and 2; and substitutes three new ones. S. R. uses 1, 3, and 4; and substitutes two new sentences.

* With young subjects the following sentences have been substituted:

3. "A man asked a boy where Mr. Smith lived. The boy said, 'The first house you come to is a barn and the next is a haystack. The next is Mr. Smith's.'" (G.)

5. "I received a letter from a friend in which he wrote, 'If you don't get this letter, just let me know and I'll write again.'" (G.)

c. The examiner says:

"Listen and see if you can understand what I read."

1. "A woman who was walking in the forest of Fontainebleau suddenly stopped, dreadfully frightened, and hurried to the nearest policeman and told him that she had just seen, hanging from the limb of a tree a (after a pause) what?" (If necessary, "Tell me what you mean" or "Explain.")

Correct: Answer must contain the idea of a person who has been hanged. (As with similar interpretation tests in the upper years, many clinical examiners credit any interpretation of the test statements, provided the subject can show them to be reasonable.) Incorrect: "A bird," "A bunch of grass," "A robber" (unless further questioning reveals the fact that the robber has been hanged).

2. "My neighbor has just received some strange visitors. He has received, one after the other, a doctor, a lawyer, and a priest (or minister). What is happening at my neighbor's?" (If necessary, "Tell me, etc." or "Explain.")

Correct: Answer should contain the idea that some one is very ill or is dead, and the subject should be able to account for the fact that all three visitors came recently.

Record each answer on the Examination Notes.

In order that the test be scored plus, both trials must be correct.

Note: S. R. adds a new problem and credits two out of three at XIV. G. and K. did not follow Binet's 1911 revision in transferring this test from XII to XV.

"C" TESTS

IIIc.

.Nose .Eyes .Mouth Shows each (If on second chance, then give last and insist). [3]

1. Attract the attention of the subject and if necessary, repeat several times:

"Show me your nose;" or "Point to your nose."

Indicate on the blank before the word "nose," whether the trial is marked O, I, or ✓.

2. In any case attract the attention of the subject again if necessary:

"Show me your eyes;" or "Put your finger on your eyes."

Mark the blank as before.

3. In any case repeat the same procedure for the mouth.

In order that the test be scored plus, the three parts of the face must be indicated. If there is no response to one or more questions, arrange to give the entire test at the end of the examination. If then there is no response, effort should be made to get an answer. Every resource (except that of teaching the child) should be used.

Note: E.g., S. R. suggests: Point to the subject's chin and say, "Is this your nose? No? Then where is your nose?"
28 The help of some other person of authority is often useful.

IVc.

.Penknife .Key (Different kinds) .Penny (Knife, keys, pennies.) [3]

1. The examiner shows a closed penknife and says:

"What is this?" or "What is this called?"

If the answer, "knife" or the like is given, the trial is marked ✓. If the trial is correct, show the next object immediately.

Proceed in like manner with:

2. Key (Be sure that it is a kind with which the subject is familiar).

3. Penny (S. R. suggests that the penny should not be a new one).

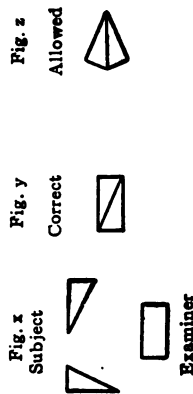
The form of the answer does not influence the marking, e.g., the subject may say, "keys" even if shown only one key. Likewise, he may say "money," "pennies" or "cents," when shown one penny. In order that the test be scored plus, all three trials must be correct.

Note: S. R. places this test at III.

Vc.

3 Cards. Joins diagonals in any way. (Non-committal expression if i.)

An oblong visiting card, previously cut diagonally into two triangular pieces and a similar uncut card are placed on the table, as arranged in Fig. x. The diagonals form a right angle and face each other.



The examiner says:

"Put these pieces together so as to form something like this" (pointing to uncut card).

If the subject puts the diagonals together (not of course superimposed), even if the result is not a perfect oblong, the test is scored plus (see Figure z).

If the subject does not take the trouble to move the cards or even to touch them, give the test later as a second chance. This should be near the end of the examination and some attempt should be insisted upon, even to the point of scolding a little. If the subject accidentally turns one of the cards or both of them, and seems unconscious of it, it is permissible to give the test again, if he does not succeed as in Figures y or z.

Whenever the subject makes a combination, he is likely to turn to the examiner for approval or assurance. It is ESSENTIAL THAT THE EXAMINER REMAIN SILENT AND PERFECTLY NON-COMMITTAL UNTIL THE SUBJECT APPEARS SATISFIED WITH HIS OWN WORK.

Note: Binet's 1911 directions for this test are ambiguous. The above plan appears in the Drummond arrangement and our results favor this plan. S. R. arranges the pieces so as to suggest a rhomboid, gives three trials of one minute each and credits two out of three.

IXb.

Returns change, 6c from quarter. [1]

The blocks and the following change piles are laid out on the table in front of the subject: 13 pennies, 2 nickels, 2 dimes.

The examiner says:

"Would you like to play store? You will be the storekeeper. Here is the money for you to use in making change for your customers (pointing to the money). Here are the things for you to sell (pointing). They are blocks. I shall buy this block. I will pay you six cents for it. Would you like to play? I wish to spend six cents. (Hand the subject a quarter.) Now give me the change." (Hold out your hand to receive the change.)

In order that the test be scored plus, the subject must hand the examiner 19c change.

S. R. substitutes three problems in mental arithmetic for the above, 4c change from 10c, 12c from 15c, 4c from 25c; and credits 2 out of 3.

Xb.

Absurdities .1 .2 .3 .4 .5 (E. N.) [3]

The examiner says:

"I am going to read you some sentences in which there is something foolish. Listen carefully and tell me every time what it is that is foolish."

Read each sentence carefully and in an expressive tone. Immediately afterwards, in a playful tone (p. t.) say:

"What is foolish in that?"

The sentence and the above question may be repeated and also the formulæ, "Tell me what you mean" or "Explain," but that is all. Record the answers in full on the Examination Notes.

The questions are as follows:

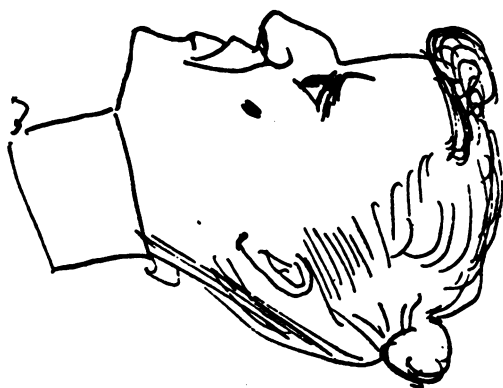
1. **"An unlucky bicycle rider fell on his head and was killed instantly. He was taken to a hospital and they fear he will not get well. (p. t.) What is foolish in that?"**

Correct: "He's dead already" (etc.). Incorrect: "Hospital. (Explain.) Get a doctor."

2. **"I have three brothers, Paul, Ernest, and myself. (p. t.) What is foolish in that?"**

Correct: "Myself. (Explain.) You've two brothers" (etc.). Incorrect: "You should say your own name."

Note: Female examiners may say: **"I have three sisters, Jane, Mary, and myself."**



XIIb.

60 words.† Watch, 3' (Use E. N.)

Score here, e.g., //////////////// //////////////// //////////////// ////////////////

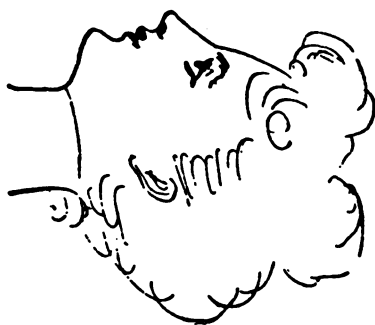
The examiner should memorize the following directions, so that he may be able to give them in such a manner as to arouse the interest of the subject:

"I want you to say all the words you can think of in three minutes. When I say 'Ready,' you will begin and you must say as many words as you can before I tell you to stop. Just say any words like table, beard, shirt, carriage, and so on. Some (young) people have said as many as two hundred words."

If the subject stops, he should immediately be encouraged to continue by saying, "Go on please," as many times as necessary without embarrassing him. If the subject begins to give numbers or uses sentences, he must be stopped after the third word and told, "You must name separate words." Time should be allowed out for this.

In order that the test be scored plus, 60 words must be given, exclusive of repetitions, within the three minutes. An effort should be made by the examiner and his assistant to record on the blank all the words said within the three minutes. The assistant should try, at least, to record first syllables of all words except repeated ones. These should be indicated simply by a dot, the next word being written on the same line as the dot. Meanwhile the examiner should try to remember as many as possible of the words, especially the first ten, and should make a stroke on the record blank after *Score here* for every word given, dotting the repeated ones and indicating the end of each half minute by a space.

Note: S. R. places this test at X; G. and K. at XI, the latter crediting fifty or less associations if unusually good ones.



1. As soon as subject responds, turn to next test. correct, the test is scored plus. If the subject does not respond to one or more pictures, repeat as a second chance.
'Which do you like the better?'



VIIc.

- R. Hand. L. Ear. Shows each (No help) (Non-committal expression if i). [2]
1. The examiner says, "Show me your right hand" or "Hold up your right hand." "Show me your left ear." BE EXTREMELY CAREFUL NOT TO GIVE ANY SUGGESTION, EITHER BY LOOK OF DISAPPROVAL OR BY A GLANCE IN THE PROPER DIRECTION. Hence the reason for not saying a word of praise if the right hand is correctly shown.
 2. "Show me your left ear."
- Hesitation and self-correction are allowed provided the subject finally gives the correct response without having received the slightest help from the examiner.
- In order that the test be scored plus, both trials must be done correctly.
- Note: S. R. If double response, count only second response. Calls also for right eye; if one error, calls for left hand, etc., and then credits 5 out of 6 at VI.

VIIIc.

- 20 to 1. Counts in 20 sec. (1 error).
- ⊗ The examiner says, "Will you count backwards from twenty to one?" If the subject does not understand, say, "Count this way, twenty, nineteen, eighteen." Do not proceed any further.
- The examiner and the assistant *look at their watches* (unobtrusively) as soon as the subject begins counting. If O give second chance near close of sitting and then insist. In order that the test be scored plus, the counting must not take more than twenty seconds, and there must be not more than one error, either of omission or of inversion. A second chance must not be given merely to increase the speed.
- Note: Y. P. demonstrates from 25 to 21 —, and allows 30 seconds; then if O or i, from 20 to 16 —, 15 to 11 —, or 10 to 6 —. S. R. allows 40 seconds and does not count errors which the subject spontaneously corrects.

IXc.

Comprehends (Easy) · 1 · 2 · 3 [2]

The examiner says:

1. "If you have missed a train, what must you do?" * (Do *not* stress "must" or "you.")
In case there is no response to this or the other questions, repeat once as usual; but that is all. Examiners who fail to comprehend the nature of standardized mentality tests are especially prone to commit the error of varying the language in these problem questions during the Binet examination.

Correct: With all such problem questions the subject must show by his answer that he comprehends exactly what the questions, *as given*, mean. This is shown here by such answers as "Wait for the next one," "Take a car," etc.

Incorrect: If the answer shows that the real point of the problem has been missed, *e.g.*, "Run after it," "Buy a ticket," etc.

2. "If you have been struck by a playmate (or friend) who did not mean to do it, what must you do?" *

Correct: "Excuse him," "Do nothing," "Tell him to pay attention," etc.

Incorrect: "Punish him," "Tell the teacher," etc.

3. "If you have broken something belonging to someone else, what must you do?" *

Correct: "Pay for it," "Excuse one's self," "Own up," etc.

Incorrect: "You must cry," "Go to the policeman," etc.

In order that the test be scored plus, two responses must be correct.

NOTE: S. R. substitutes a modified form of question Xc1 for the last question and places the test at VIII.

* Remember not to vary or supplement the test formulæ in any way during the Binet examination.

The examiner says:

1. "When you are delayed on your way to school (or church), what must you do?" * (Do not stress *must* or *you*. If O, repeat once; but that is all.)
 Correct: States what he would do *on the way*, e.g., "Hurry." If he says, "Go home," ask him to explain. If his answer shows that he had been trained to go home if *in danger* of being late, his answer is correct.
2. "Before taking part in an important matter, what must you do?" *
 Correct: "Study the matter," "Ask advice," etc.
 Incorrect: "Go away," "Consult a doctor," etc.
3. "Why do you forgive a wrong act done in anger more easily than a wrong act done without anger?" *
 Correct: Involves the idea that anger constitutes an excuse.
 Incorrect: "You must not get angry," etc.
4. "If someone asks you your opinion about a person whom you do not know very well, what must you do?" *
 Correct: Involves the idea either of making inquiry or of not giving any opinion.
 Incorrect: "You must answer," "Say you don't know his name," etc.
5. "Why should we judge a person by his acts rather than by his words?" *
 Correct: Involves the idea that words are more deceptive.
 Incorrect: "You must not lie," "You do not know," etc.
 In order that the test be scored plus, three responses must be correct.

* Remember not to vary or supplement the test formulae in any way during the Binet examination.

XIIc.

NOTICE TO EXAMINER: The entire directions for using the next six line-plates should be reviewed now,—before beginning the test.

The examiner will show:

1. Plate XIIc1 and will say, "**Which is the longer of these two lines?**"

2. " " 2 " " " " " " " " " "

3. " " 3 " " " " " " " " " "

Then without special pause or change of voice, will show:

4. Plate XIIc4 and will say, "**And of these?**"

5. " " 5 " " " " " " " " " "

6. " " 6 " " " " " " " " " "

The subject's responses are not recorded until after the last plate (XIIc6) is shown and removed from sight. Then the responses to Plates 4, 5, and 6 are marked.

As soon as the examiner is sure that he has the above procedure clearly in mind, he shows Plate XIIc1, on page 95. In order that the test be scored plus, two of the last three trials must be correct—that is, the subject must show that he sees that the lines are equal.

NOTE: Y. P. credits any resistance of suggestion, *e.g.*, if the subject considers that the line at his left is longer or the same on any of the last three plates.

1. The examiner shows Plate XIIc1 (opposite), and says:
"Which is the longer of these two lines?"
Do not record the subject's response but immediately proceed with trial 2.

1

2

2. Proceed exactly as in trial 1.

IXc.

Comprehends (Easy) · 1 · 2 · 3 [2]

The examiner says:

1. "If you have missed a train, **what must you do?**"* (Do *not* stress "must" or "you.")

In case there is no response to this or the other questions, repeat once as usual; but that is all. Examiners who fail to comprehend the nature of standardized mentality tests are especially prone to commit the error of varying the language in these problem questions during the Binet examination.

Correct: With all such problem questions the subject must show by his answer that he comprehends exactly what the questions, *as given*, mean. This is shown here by such answers as "Wait for the next one," "Take a car," etc.

Incorrect: If the answer shows that the real point of the problem has been missed, *e.g.*, "Run after it," "Buy a ticket," etc.

2. "If you have been struck by a playmate (or friend) who did not mean to do it, **what must you do?**"*

Correct: "Excuse him," "Do nothing," "Tell him to pay attention," etc.

Incorrect: "Punish him," "Tell the teacher," etc.

3. "If you have broken something belonging to someone else, **what must you do?**"*

Correct: "Pay for it," "Excuse one's self," "Own up," etc.

Incorrect: "You must cry," "Go to the policeman," etc.

In order that the test be scored plus, two responses must be correct.

NOTE: S. R. substitutes a modified form of question Xc1 for the last question and places the test at VIII.

* Remember not to vary or supplement the test formulae in any way during the Binet examination.

3. Proceed exactly as in trial 1.

XIIc.

NOTICE TO EXAMINER: The entire directions for using the next six line-plates should be reviewed now,—before beginning the test.

The examiner will show:

1. Plate XIIc1 and will say, "Which is the longer of these two lines?"
2. " 2 " " " " " " "
3. " 3 " " " " " " "
4. Plate XIIc4 and will say, "And of these?"
5. " 5 " " " " " "
6. " 6 " " " " " "

Then without special pause or change of voice, will show:

The subject's responses are not recorded until after the last plate (XIIc6) is shown and removed from sight. Then the responses to Plates 4, 5, and 6 are marked.

As soon as the examiner is sure that he has the above procedure clearly in mind, he shows Plate XIIc1, on page 95. In order that the test be scored plus, two of the last three trials must be correct—that is, the subject must show that he sees that the lines are equal.

NOTE: Y. P. credits any resistance of suggestion, e.g., if the subject considers that the line at his left is longer or the same on any of the last three plates.

4. Continue *without* changing tone, but say,—
“And of these?” making a mental note of the response so as to be able to record it at the end of the test, and immediately show Plate XIIc5.

—

—

2. Proceed exactly as in trial 1.

1

2

6. Proceed exactly as in trial 4. As soon as the subject has responded, turn to next test. The examiner then immediately marks trials 4, 5, and 6, placing a check for each trial in which the subject indicates that the lines on 4, 5, and 6 are both the same.

In order that the test be scored plus, two out of the last three trials must be marked ✓.

THIS TEST CANNOT BE REPEATED.

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Rimes { missed, artist, etc. } 1' [3] (Use E. N.).

The examiner says:

"Two words that rime are two words that end in the same manner. Thus 'uniting' rimes with 'reciting,' uniting; *reciting*; they both end in 'iting.' (Pronounce; do not spell.) In the same way 'adore' rimes with 'before,' *adore*; *before*; they both end in 'ore.' Do you understand? Now I am going to say a word, and you are to find all the other words that rime with it. The word is 'resist.'"

The examiner and his assistant now look at their watches (unobtrusively). If there is no response within 10", the examiner should say, "Tell me all the words you can think of that rime with 'resist.'" At the end of 20" (from the beginning) and again at the end of 40", he may say "Go on; you can tell me some (more) words that rime with 'resist.'" No other instruction and no correction should be given. If interrupted, proceed with a *different* test when the interruption has ceased. Then return to this test, and repeat the above instructions, substituting the word 'receive' for 'resist.' All responses should be recorded on the Examination Notes.

In order that the test be scored plus, three real words ending with 'ist' or 'issued' must be given within a minute. If two satisfactory rimes have been given within one minute, wait 30" longer. If three rimes are given within 90", the test should be scored ?+.

Satisfactory: Any three expressions like "exist, enlist, untwist, twist, gist, whisk," etc. Allowed: "artist, dentist, insist, persist, amethyst," etc.

Unsatisfactory: "lightest, released, whizzed," coined words, like "presist," etc.

NOTE: The words "resist" and "receive" were selected from a series of words tried out on young adolescents, pre-adolescents, and adults. G., K., and S. R. employ the words "day, mill, and spring," requiring two correct trials. G. then places the test at XI, K. at XII, and S. R. at IX. "Defender" and "obey" have been used at XV by some examiners.

METHOD OF RECORDING CHANGE IN SUBJECT'S MENTAL ATTITUDE

Both the examiner and the assistant should make the fullest possible notes of the subject's attitude. These notes should be made on the Memorandum Sheet and should be completed immediately at the close of the sitting.

Remember to observe the subject's attitude throughout. Record change of attitude by writing in the margin an abbreviation for the new attitude observed:

Record slight fatigue *	by "P" in margin of test blank.
" lack of interest or of attention	" "L" " " " " "
" interest, though inability to respond	" "I" " " " " "
" over-anxiety or over-willingness	" "O" " " " " "
" unwillingness or negativism †	" "U" " " " " "
" timidity ‡	" "T" " " " " "

* Signs of marked fatigue should terminate the examination sitting.

† Continued unwillingness " " "

‡ Other attitudes, e.g., suspiciousness, complacency, etc., may be recorded in a similar manner.

5. Proceed exactly as in trial 4.
Then remembering the response so as to be able to record it at the close of the test, show Plate XIIc6.

—

—

6. Proceed exactly as in trial 4. As soon as the subject has responded, turn to next test. The examiner then immediately marks trials 4, 5, and 6, placing a check for each trial in which the subject indicates that the lines on 4, 5, and 6 are both the same.

In order that the test be scored plus, two out of the last three trials must be marked ✓.

THIS TEST CANNOT BE REPEATED.

Rimes { missed, artist, etc. } 1' [3] (Use E. N.).

The examiner says:

"Two words that rime are two words that end in the same manner. Thus 'uniting' rimes with 'reciting,' uniting; reciting; they both end in 'iting.' (Pronounce; do not spell.) In the same way 'adore' rimes with 'before; adore; before; they both end in 'ore.' Do you understand? Now I am going to say a word, and you are to find all the other words that rime with it. The word is 'resist.'"

The examiner and his assistant now look at their watches (unobtrusively). If there is no response within 10", the examiner should say, "Tell me all the words you can think of that rime with 'resist.'" At the end of 20" (from the beginning) and again at the end of 40", he may say "Go on; you can tell me some (more) words that rime with 'resist.'" No other instruction and no correction should be given. If interrupted, proceed with a *different* test when the interruption has ceased. Then return to this test, and repeat the above instructions, substituting the word 'receive' for 'resist.' All responses should be recorded on the Examination Notes.

In order that the test be scored plus, three real words ending with 'ist' or 'issed' must be given within a minute. If two satisfactory rimes have been given within one minute, wait 30" longer. If three rimes are given within 90", the test should be scored ?+.

Satisfactory: Any three expressions like "exist, enlist, untwist, twist, gist, whist," etc. Allowed: "artist, dentist, insist, persist, amethyst," etc.

Unsatisfactory: "lightest, released, whizzed," coined words, like "presist," etc.

NOTE: The words "resist" and "receive" were selected from a series of words tried out on young adolescents, pre-adolescents, and adults. G., K., and S. R. employ the words "day, mill, and spring," requiring two correct trials. G. then places the test at XI, K. at XII, and S. R. at IX. "Defender" and "obey" have been used at XV by some examiners.

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Record slight fatigue *	by "F" in margin of test blank.
" lack of interest or of attention	" "L" " " " " "
" interest, though inability to respond	" "I" " " " " "
" over-anxiety or over-willingness	" "O" " " " " "
" unwillingness or negativism †	" "U" " " " " "
" timidity ‡	" "T" " " " " "

* Signs of marked fatigue should terminate the examination sitting.

† Continued unwillingness

‡ Other attitudes, e.g., suspiciousness, complacency, etc., may be recorded in a similar manner.

ET AND ASSISTANT
S. The only cor-
d by the dagger,
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cost. The timir
R. uses this as a
it take to buy a

CELLS GAVE THE
seconds, score t
starting, the sa
unt aloud how
nula: "How m
it."

The test should then be resumed as soon as the interruption has ceased. The extra sets of numbers should be employed, using as many of the digits of each of the extra sets as are required for the test that was interrupted.

In order that the test be scored plus, any one of the three trials for a given year should be repeated exactly as given (except for speech defects), after hearing the set pronounced only once.

Lower credit \ominus , should be given for the shorter sets of test digits than the set passed, unless credit has already been given.

Note: S. R. uses as alternate tests 3 digits at III, 4 at IV, 5 at VII, 6 at X, and 7 at XIV and pronounces them one second apart.

Vd.

4 Pennies Counts each with finger.

Four pennies are placed on the table in a row. (For convenience in the test, these pennies and the nine others used in test VId may be arranged in advance and covered with a blotter or paper until ready to be shown.)

The examiner uncovers the four pennies in a row and says:

"See these pennies. Count them. Tell me how many there are."

Whether or not the subject gives the right total, he must count them aloud, pointing to each with his finger. If he does not count them aloud, say:

"Count the pennies aloud and point to (or touch) each penny as you count."

BE CAREFUL NOT TO DEMONSTRATE THE METHOD OF COUNTING.

Any error in the act of counting constitutes a failure, e.g., skipping a penny or counting a penny twice, even though the correct answer is given.

In order that the test be scored plus, the four pennies must be counted aloud and pointed to correctly. If there is a total absence of response, a second chance is given later.

Note: S. R. allows demonstration with the first penny and then places the test at IV.

VId.

13 Pennies (see Vd first).

Follow all the directions given for Vd, using thirteen pennies instead of four.

IXd.

Coins, recognized. Bills, known. [12]

The examiner shows the following coins:—cent, nickel, dime, quarter, and half dollar.

These coins should be put in a row on the table, not in the order of their value, *e.g.*, 5c, 25c, 1c, 50c, 10c. As each coin is pointed to in succession, the subject names it without touching it. The coins should **always** be placed so that the subject can see the faces.

1. The examiner, pointing to each coin in turn as arranged on the table, says:

“What is this?” (or **“How much money is this?”**)

If the subject fails on any coin, the test should be discontinued and scored minus.

2. If the subject names all the coins correctly, he is shown a dollar bill, and if it is recognized, he should be asked what bills there are larger than one dollar. If he then names the two, five, and ten, and does not include any non-existent bills, the test is scored plus.

If the subject names a three dollar bill or the like, the examiner, while being very careful not to suggest the correct answer, says:

“Have you ever seen a five dollar bill? A three dollar bill? A one dollar bill? A ten dollar bill? A four dollar bill? A two dollar bill? A seven dollar bill?”

If the subject insists that he has seen a seven dollar bill or the like, the answer is counted wrong, but if he merely mentions it and then does not insist, do not count it wrong.

In order that the test be scored plus in this case, the subject must name correctly the five coins, *e.g.*, “penny” or “cent,” “nickel” or “five cents,” etc., and he must show that he knows there are one, two, five and ten dollar bills and must not insist that he has seen a three dollar bill and the like.

Either nine or twelve answers must therefore be correct, *i.e.*, the five coins, the four bills, and if necessary the three catch questions on bills.

Paste

1c

spaces.

2c

SENTENCES. IIIe, Ve, XVe [1]

(Consult XVe first on blank, i. e., give Pe (preliminary sentences) before any test sentences. Stresses about $\frac{1}{2}$ ” apart and with expression, each once. No errors except {in pronunciation}).

(N. B.—The examiner should practise repeating the sentences of this test, pronouncing the sentences, so that the accented syllables occur every half second.)

We begin with the preliminary sentences for the lowest year called for by the rules for test order.

The preliminary sentences (Pe) may be repeated as often as necessary, but the test sentences should be pronounced only once. If an interruption necessitates repetition, use the corresponding test sentence, enclosed within braces below.

The test sentences should not be given until the preliminary sentences have been reproduced exactly (except for speech defects). The examiner, however, does not say when they are wrong, but merely repeats the instructions and the preliminary sentence.

If the subject repeats the test sentence of a given year correctly, the test is scored plus at that year and the next preliminary sentences are given.

The examiner says:

114 “Listen carefully and repeat exactly what I say.”

He pronounces the following sentences with expression and in the order described above:

- | | | | |
|---------|----------------|--|---|
| Pe | (2 syllables) | “Papa.” (4 syllables). | “Hat. Pair of shoes.” (May be repeated for practice.) |
| • IIIe† | (6 “) | “It is cold. I’m hungry.” {if interrupted: “It rains. I am sleepy.”} | No repetitions. |
| Pe | (8 “) | “I have a cloth. I have clean hands.” | |
| • Ve† | (10 “) | “My name is William. Oh, the naughty dog!” {“His name is John. It is a very fine day.”} | |
| Pe | (16 “) | “Let us go for a long walk. Give me the pretty little bonnet.” | |
| Pe | (24 “) | “It is not necessary to hurt the poor little birds. It is night and all the world rests in sleep.” | |
| • XVe† | (26 “) | “The other day I saw on the street a pretty yellow dog. Little Maurice has stained his nice new apron.” {“My dear little children, you must work very hard for your living. You must go to school every morning.”} | |

In order that the test be scored plus, there must be no error in the test sentence for any year, except a possible mispronunciation due to speech defect. Lower credit is given as usual.

NOTE: S. R., unlike Binet, is not confined to sentence pairs but uses sometimes single sentences and occasionally sentence pairs, employing them as alternate tests as follows: Six or seven syllables at III, twelve or thirteen at IV, sixteen or eighteen at VI, twenty or twenty-two at X, twenty-eight at "average adult."

N. B.

As there is no "e" test in year IV, each test represents one-fourth of a Binet year. Fractions of a year are, for convenience, expressed in only one decimal place. Hence should the subject have a Binet base less than year IV:

One test passed in year IV would count 0.2 as makeup credit.

Two tests " " " " " " 0.5 " " "

Three " " " " " " 0.7 " " "

Four " " " " " " 1.0 " " "

For the sake of uniformity in expressing Binet age, sub-age and super-age, a figure is always written in the units and the tenths places even though the figure is a zero.

Ve.

See sentences above.

VIe.

Morning or afternoon? (Echo?)

"Is it morning or afternoon now?"

Be sure that the subject is giving a thoughtful answer and not merely echoing one of the words. If necessary, the questions may be repeated in reverse order, i.e.:

"Is it afternoon or morning now?"

Continue until you are sure the reply is a thoughtful one, i.e., not a mere echo.

VIIe.

Colors. Names all. (No error) [4]

The examiner shows Plate VIIe, pointing to each color in turn, beginning with the red, and saying:
“What is this color?”

The colors should be pure (as on opposite plate); and if so, the least error is counted a failure.

In order that the test be scored plus, the four colors must be correctly named.

NOTE: S. R. uses “What is the name of this color?” and places the test at V.

Xd and XIId.

3 Words, 2 main clauses (see XIId) 1'. Higher Credit for Xd (use O. R.)

See Original Records. Pupil writes* in pencil sentence using Philadelphia,† money, river.

The examiner points to the three words on the Original Records and reads them aloud twice, slowly and distinctly. Then the examiner says:

"You make a sentence† and use in it these three words." (Repeat once, if necessary.)

Hand the subject a pencil and the Memorandum Sheet. No further explanation is allowed, but the examiner may, if necessary, write the words on the Memorandum Sheet and repeat the above formula. Then the examiner and his assistant look at their watches (unobtrusively). If there is no written response within one minute, the test is scored minus. If a satisfactory response is written within one minute, the test is scored plus; but if it takes more than ninety seconds, it is scored (?+). Whatever the subject writes on the Memorandum Sheet he is asked to copy in pencil on the Original Records. No account is taken of the time for this copying.

METHOD OF SCORING ACCORDING TO TYPE OF SENTENCE CONSTRUCTION.

As explained on page 16, the "rectitude" or reasonableness of the thought does not affect the scoring of this test; nor does accuracy of punctuation, etc.

113 ⊕ Xd Passed both Xd and XIId if the three words are combined in one sentence of the simple or the complex + XIId type throughout, i.e., there must be only one main statement (or question) and no co-ordinating words like "and." Allowed: "Philadelphia is a city of money by the river."

+ Xd Passed at Xd but failed at XIId if there are two statements or one statement containing words like "and."

- XIId Allowed: "Philadelphia has money and rivers."

"Philadelphia has money. Philadelphia has rivers."

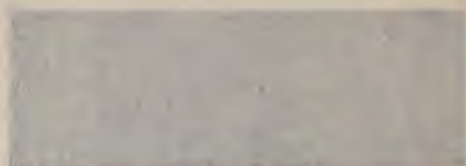
XVd.

The instructions for this test are given under IIIId.

* Most American investigators, following G., allow the subject to give the response orally and credit it as equal to a written response.

† It is customary to employ the name of the nearest city that is on a river, bay, or lake.

‡ Some investigators explain the meaning of sentence. Binet considered all such modifications to be unnecessary at this level. If any such modifications are made, the score should be written within parentheses. Y. P. makes the above modifications and also emphasizes that one good sentence is desired. S. R. uses adaptations 1 and 3 with three easier sets of words, credits two out of three sentences, and then places the test at IX.



VIII.

Dwk. · Mo. · Dm. { 4 } · Yr. { 4 }

a examiner says:

let day is to-day? "

let date is to-day? " or " What is to-day's date? "

a subject does not give a complete answer, use such of the following questions as may be necessary in order to get from the subject the complete date:

First day of the week is to-day? "

What month is this? "

" What day of the month is this? " or repeat the month, followed by " what? "

" What year is this? " or " Nineteen—what? "

In order that the test be scored plus, the subject must give the following:

1. Exact day of the week.

2. Exact year.

3. The day of the month within four days.

4. The exact month, unless tested at the beginning or end of the month, at which time an error of four days might involve a corresponding error in the name of the month.

Bisset's rule that an error of three or four days in the day of the month is allowed, brings it about that if the subject names any one of the nine days of which the correct date is the middle, the test is scored plus, provided the other requirements of the test are met.

NOTE: S. R. places this test at IX.

IXe.

Months[†] Watch 15" { 1 error } Begins with any month. (No help).

The examiner says:

"Name all the months of the year in order."

As soon as the subject begins, the examiner and assistant should look at their watches (unobtrusively) and should record the number of seconds taken by the subject to name the months.

In order that the test be scored plus, the months should be named in order in fifteen seconds. The subject is allowed to begin with any month and to make one error, either of omission or of inversion. If he does it correctly in 20 seconds, score the test ?+.

The examiner is not allowed to name any month in order to give the subject a start.

If the subject does not understand the instructions, the test is scored minus.

A second chance may be given only if there was no response to the first chance, *i. e.*, practice for speed is not permitted.

NOTE: S. R. allows twenty seconds but requires the subject also to answer two out of three check questions correctly, *e.g.*, "What month comes before April?" "What month comes before July?" "What month comes before November?"

Xe.

Designs (Out of sight until ready) Watch 10" (Use E. N.) [1½]

(See Original Records Xe. Draws both designs from memory in pencil below after seeing them only once for ten seconds.)

Before letting the subject have the slightest glimpse of the designs, the examiner makes sure that no pencil, pen, ruler or paper is within reach of the subject and then says:

"I am going to show you two drawings. After you have looked at them a short time, I shall cover them and ask you to draw them from memory. You must look at them very carefully for you will have only ten seconds to look at them and that is a very short time."

The examiner now looks at his watch and when ready to begin turns this manual so that the back blank page faces the subject and says:

"Attention,——Now,——Ready!"

The examiner now shows the design (Plate Xb), which is printed on the last page of this manual in order that it may not be seen by the subject beforehand. The perspective drawing appears at the subject's left. The subject should *not be allowed to have a pencil until the end of the ten seconds*, at which time the examiner closes the manual, hands the subject a pencil and the blank, and says:

"Now draw them both here" (pointing to the space provided on the blank).

In order that the test be scored plus, the drawings must receive one and a half credits: one must be as good as the examples on the top line and the other at least as good as those on the middle line of page 131,-e. [1½]

The subject may make the drawings in any way he wishes on the blank, taking as much time as he wants. NO SCRATCH PAPER IS ALLOWED AND ON NO ACCOUNT MAY THE SUBJECT BE SHOWN THE DESIGNS A SECOND TIME. THERE IS ONLY ONE TRIAL AND ONLY ONE CHANCE.

XIIe.

Dissected sentences. [2]

1. The examiner shows Plate XIIe1 (opposite) and says:

"You see these words. Please read them to me.

Put these words in their proper order so as to find the sentence which they make."

The answer is to be given ORALLY and without further aid.

In order that the trial be marked ✓, all the words on Plate XIIe1 must be included, but they may be arranged in any order that is logical, irrespective of idiomatic order. The rhetoric is of no consequence, e.g., "For the country we started at an hour early" should be marked plus.

At the end of a minute, the next plate is shown.

Allowed: (See unrhetorical example above).

Incorrect: Illogical use of prepositions, etc.

FOR AN THE
AT HOUR EARLY
WE COUNTRY STARTED.

IXe.

Months[†] Watch 15" { 1 error } Begins with any month. (No help).

The examiner says:

"Name all the months of the year in order."

As soon as the subject begins, the examiner and assistant should look at their watches (unobtrusively) and should record the number of seconds taken by the subject to name the months.

In order that the test be scored plus, the months should be named in order in fifteen seconds. The subject is allowed to begin with any month and to make one error, either of omission or of inversion. If he does it correctly in 20 seconds, score the test ?+.

The examiner is not allowed to name any month in order to give the subject a start.

If the subject does not understand the instructions, the test is scored minus.

A second chance may be given only if there was no response to the first chance, *i. e.*, practice for speed is not permitted.

NOTE: S. R. allows twenty seconds but requires the subject also to answer two out of three check questions correctly, *e.g.*, "What month comes before April?" "What month comes before July?" "What month comes before November?"

TO ASKED PAPER.

MY I TEACHER

CORRECT MY

Proceed exactly as in trial 1.

Allowed: "A dog defends his good master bravely."

Incorrect: "A good master defends his dog bravely."

In order that the test be scored plus, two trials must be marked ✓.

XVe.

Directions for giving this test are included under IIIe.

A DEFENDS

DOG GOOD HIS

MASTER BRAVELY

Proceed exactly as in trial 1.

APPENDIX

Proceed exactly as in trial 1.

Allowed: "A dog defends his good master bravely."

Incorrect: "A good master defends his dog bravely."

In order that the test be scored plus, two trials must be marked ✓.

XVe.

Directions for giving this test are included under IIIe.

A DEFENDS

DOG GOOD HIS

MASTER BRAVELY

APPENDIX

TESTS ABOVE YEAR FIFTEEN

If the subject passes ten or more tests above year nine, the following so-called "adult" tests should be applied. Each test counts 0.6 credit.

- a Abstract differences. [2]. Follow the directions given for test VIIa but omit the introductory formula.

1. "What is the difference between idleness and laziness?"

Correct: If the subject shows that he realizes that idleness is not necessarily due to laziness.

2. "Poverty and misery?"

Correct: Contrasts being poor with being miserable or being in pain.

3. "Evolution and revolution?"

Correct: Contrasts slow with rapid change or military manoeuvres with an insurrection.

- b Differences between a king and a president. [2]

"There are three principal differences between a king and a president of a republic. What are they?"

Correct: If the subject shows that he realizes any two of the following points—inheritance of office *vs.* election; life tenure *vs.* limited term; not directly responsible to the people *vs.* directly responsible. The statement that a king (of to-day) may have less power than a president should be credited.

- c Reversed Triangle.

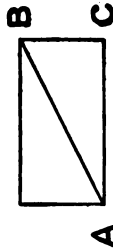
Arrange the cut card on a piece of paper in the manner indicated in the diagram.

Print the letters A, B, and C on the paper beside the corners indicated.

The examiner says:

"Look well at the lower part; suppose it to be turned over so that the edge AC (examiner pointing) is applied to the edge AB of the upper part; suppose also that the point C is placed upon the point B. Now I remove the piece; replace it in your mind as I have described and draw its outline in that position. Commence by tracing the outline of the upper piece."

Correct: If the lower angle at B is drawn as a right angle and the edge AC shorter than the adjoining edge AB.



d Folded Paper.

The examiner prepares in advance the following test material and preserves it as part of his permanent outfit. A square sheet of plain paper is folded in four. In the middle of the edge that shows only one fold is drawn a small triangle, a centimeter in height, whose base coincides with the edge of the paper. Throughout the test the paper should rest flat on the table.

The examiner shows the folded paper just described and says:

"Here is a sheet of paper that has been folded in four; suppose that here (showing him the triangle) I should cut out the little triangle that has been drawn. Now if I were to unfold the paper, what would I see? Draw the paper and show how and where it would be cut."

Correct: If two diamonds are drawn in line with each other and each in the center of one half of the paper.

e Reproduction of Ideas of Hervieu.

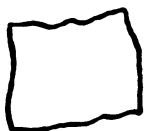
Follow the same directions as for XVe but omit the preliminary sentences there required. The examiner says:

"I am going to read you something to see how well you can remember it afterwards. You must pay careful attention as I shall read it but once. It does not matter whether you remember the exact words. Listen carefully."

"One hears very different judgments on the value of life. Some say it is good, others say it is bad. It would be more correct to say that it is mediocre; because on the one hand it always brings us less happiness than we desire, while on the other hand the misfortunes it brings are always less than others desire for us. It is the mediocrity of life which makes it just, or, rather, that keeps it from being positively unjust."

Correct: Must contain the three *ideas* indicated below.

Life is neither good nor bad/because it is inferior to what we desire/and better than what others desire for us.



1



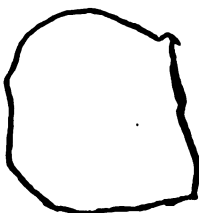
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3



4



5



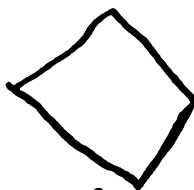
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1



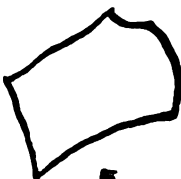
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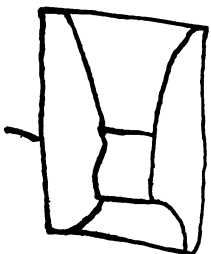
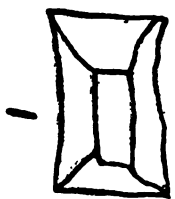
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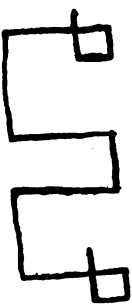


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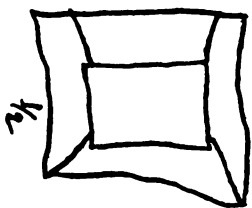
Half

Right

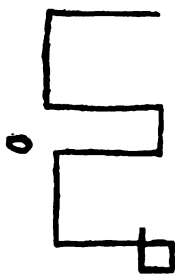
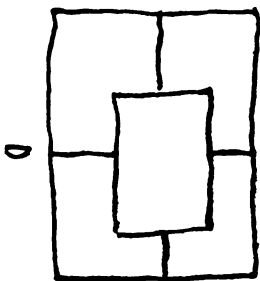
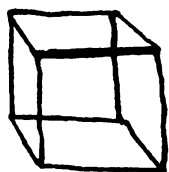


$\frac{1}{2}$

$\frac{1}{2}$



Wrong



ORTHOGENIC TABLE OF PROVISIONAL MENTAL CLASSIFICATION

Mental Growth Periods	Characteristic Mental Functions	Typical Binet Scores	
		Base Year*	Binet Age*
Early Infancy.....	Acquiring motor control Imitative play, etc.	Below III	Below 3
Later Infancy.....	Learning simple associations Name-getting, enumerating, etc.	III	3-4
Early Childhood.....	Acquiring simpler coordinations, sensory discriminations, etc. Image-getting, dramatizing, etc.	IV-VI	5-7
Later Childhood.....	Acquiring control of images and associations. Differentiating between images, describing, etc.	VI-VIII	8-10
Pre-adolescence.....	Acquiring the simpler forms of causal thinking. Problem solving, controlled association, classification, etc.	IX-X	11-13
Adolescence.....	Acquiring power of generalization. Interpreting situations, inductive and deductive thinking, etc.	X or above	14 or above

* If the typical minimum base year corresponding to a given Binet age is not attained, the subject should be provisionally classified at the next lower growth period.

PROVISIONAL PSYCHO-EDUCATIONAL CLASSIFICATION

Language Ability	Binet Age Difference	Mentality	Scholastic Group
Above age.....	+2 or higher.....	Superior.....	Rapid Advancement.
Foreign.....	+1 to -1*.....	Superior or average.....	Special F (Foreign).
At age or above	Less than +1 or -1.....	Average.....	Normal.
Retarded 1 year or more.....	" " " " " "	"	Special E (Scholastically handicapped).
At age or retarded.....	At age to -2 (Average -1)	Ill-balanced ?	Special D (Disciplinary).
Retarded 1 year or more.....	-1 or -2.....	Slow (Curable defects?).....	Special C (Physically handicapped).
Retarded 1 year or more.....	-1 or -2.....	Dull (Incurable defects?)....	Special B (Backward).
Retarded.....	-3 or lower.....	Inferior " "	Special A (Atypical).

*The subject must be tested in his own language or allowance made for any language difficulties in the test.

ANATOMICAL LIMITS FOR SUBNORMALS (BOYS)*

Age	Height	Diameter Ant.-Post. Cephalic	Diameter Transverse Cephalic	Sum of the Two Diameters
6	100.0	164	133.0	297
7	105.0	166	135.0	300
8	110.0	169	136.0	306
9	115.0	171	137.0	308
10	120.0	172	138.0	310
11	125.0	173	139.0	312
12	130.0	174	140.0	314
13	135.0	175	141.0	316
14	140.0	178	142.0	320
15	142.5	179	143.5	322
16	145.0	180	145.0	325
17	147.5	181	146.0	328
18	150.0	182	147.0	329

*A mental defective may have a fully developed body. The above mentioned data have significance when used in connection with psychological data.

INDEX

INDEX

- Abilities, distribution of, 24, *v.*
 - Scattering of successes
 - superior or supernormal, 8, 133
- Abnormal, the mentally, 35, *v.* Ill-balanced, Insanity
- Abstract terms, defining, 63
 - differentiating, 128
 - thought, remembering, *v.* Reproducing ideas
- Absurd responses, scoring, 16, 113, *v.*
 - Intelligence, rectitude of
- Absurdities, detecting, 98
- Action, defining in terms of, 59
- Adaptations of the scale, 6*ff.*
- Adolescence, mental level of, 132
- Adult tests, 128*ff.*
- Æsthetic comparison, 84
- Age, Binet or "mental," 7, 9*ff.*, 33, 41, 115, 132
 - chronological or life, 11, 33
 - physiological, 12, 37
- Age-difference, 9*ff.*, 37, 133
- Age-grade retardation, 36
- Alienists, *v.* Responsibility, penal
- Aliens, defective, *v.*
- Alternative questions, *v.* 3, *v.* also separate test directions
- Amentia, *v.* Clinical varieties, Feeble-mindedness
- Analysis, clinical, 9, 13*ff.*
 - statistical, 11
 - vocational, *vi.*
- Anatomical limits, *vi.* 9, 12, 134
- l'Année Psychologique*, 13*ff.*
- Anthropometric measurements, *vi.* 9, 12, 27, 37, 134
- Apperception, *v.* Combining, Completing, Defining
- Aptitude, the scholastic, 15*ff.*
- Association, *v.* Counting, Naming, Riming, Sixty words
- Attention, 15, 22
- Attitudes, mental, 13, 30*ff.*, 47
- Base year, 9*ff.*, 132
- Binet, A., and Simon, Th., 13*ff.*, 43*ff.*
 - scale, the, 4, 43*ff.*
 - table of anatomical limits, 134
- Binet age (score), *v.* Age, Binet
- Bobertag, O., 6, 48*ff.*
- Borderline of feeble-mindedness, 10*ff.*
- Bronner, A., 7
- Case study, general plan of, 24
 - record form for, 32
- Change, giving, 78
- Classification, provisional, 9*ff.*, 132, 133
 - orthogenic, 132
 - psycho-educational, 133
- Coefficient of intelligence, *v.* Quotient, Binet
- Coins, naming, 112
- Colors, naming, 116
- Combining cards, 83
 - words, 113, 120
- Commissions, performing three, 68
- Comparing lines, 52, 93
 - weights, 58, 62
- Completing part-pictures, 70
 - problem, 81
- Comprehending questions, 91, 92
- Confusional states, 21, 23

- Coördination, motor, *v.* Copying
 Copying diamond, 68
 square, 66
 Correction tables, construction of, 12
 Correlation with other measures, 12
 Counting backwards, 90
 cost of stamps, 110
 pennies, 109
 Cranial measurements, 134
 Cretinism, 24
 Criminals, *v.*, 17
 Critical studies in psychopathology,
 vi., 21*ff.*
 Cut paper, visualizing, 129
 Data, analyzing the, 8*ff.*
 recording, 32
 Date, knowing, 117
 Defects, special, 11, 19, 20, 24
 Deficiency, mental, *v.* Feeble-minded-
 ness
 Defining tests, 59, 61, 63
 Delinquents, *v.*, 25, 35
 Dementia, 21*ff.*
 Description, examples of, 44, 46, 48
 Designs, reproducing, 119, 144
 Diagnosis, differential, 21
 formal, 8, 9
 Diamond, copying, 68
 Differences, mentioning, 60, 128
 Digits, reproducing, 108
 Directions to examiners, 29*ff.*
 to school examiners, 32
 Disciplinary cases, 30, 35, 133
 Dissected sentences, reconstructing,
 120
 Doll, E. A., 11
 Doubtful responses, scoring, 31
 Drawing, *v.* Copying, Reproducing,
 Visualizing
 Dull, the normal, 34, 133, *v.* Retarda-
 tion
 Ebbinghaus tests, *v.* Combining,
 Completing
 Education, *v.* Aptitude, Grading,
 Retardation
 Ellis, F. W., 11
 Emotion, *v.* Æsthetic, Attitudes
 Enumeration, examples of, 44, 46, 48
 Environment, influence of, 12
 Epilepsy, 24, 25
 Esthetic comparison, 84
 Eugenics, 26
 Evaluation of results, 7, 9*ff.*, 132*ff.*
 Examination, beginning th, 29, 41, 44
 duration of, 31
 observers at an, 29
 Examiners, qualifications of, 6, 7
 training, *iii.*, *v.*, 7
 Experience, influence of, 17
 "Faculties," use of the term, 9
 Fatigue, 46, 64, 107
 Feeble-mindedness, 10*ff.*, 17, 18, 23,
 25
 Fernald, M. R., 5
 Figures, *v.* Digits
 Frontiers of physical abnormality,
 v. Limits
 Functioning, disturbances of, 19*ff.*
 Goddard, H. H., 6, 10, 48*ff.*
 Grading defectives, 8, 11
 normals, 8, 16
 Head measurements, 134
 Healy, Wm., 7
 Height, measurements of, 134
 Huey, E. B., 5
 Idiocy, 14, *v.* Diagnosis, formal
 Imagination, *v.* Completing, Visual-
 izing
 Imbeciles, 19*ff.*

- Incompetency, 34, *v.* Responsibility
- Individual-study, method of, 24, 32
- Inertia of functioning, 19*ff.*
- Infancy, mental level of, early and later, 132
- Insanity, *v.* Confusional states, Dementia
- Instructions to school examiners, 32
- Intellectual levels, 14*ff.*, 132
- Intelligence, 15*ff.*
 - level of, 14*ff.*, 132
 - maturity of, 16
 - quotient, *v.* Quotient, mental
 - rectitude of, 16, 113
- Interpretation of results, 7, 9*ff.*
 - of pictures, examples, 44, 46, 48
- Introspective psychology, 9
- Judgment, 21, *v.* Intelligence, rectitude of
- Juvenile mentality, 42
- Knowing date, 117
 - morning or afternoon, 115
 - parts of body, 82
 - right and left, 90
 - sex, 65
 - surname, 65
- Kohs, S., 10
- Kraepelin, the signs of, 24
- Kuhlmann, F., 6, 48*ff.*
- Language ability, 11, 35, 133
- Limits, anatomical, vi, 9, 12, 134
 - psychological, 10*ff.*
- Linguistic invention, *v.* Combining words
- McCallie, J. M., 4
- Massalon test, 113
- Materials, test, 40, 45*ff.*
- Measuring intelligence, meaning of, 14
- Measurements, anthropometric, 9, 12*ff.*
 - pedagogical, 12*ff.*, 35
 - psychological, 8*ff.*, *v.* Quotient
- Medical examination, *v.* Psycho-biological
- Melville, N. J., 3
- Memorandum sheet, 29, 37
- Memory, *v.* Knowing, Naming, Reproducing
- "Mental" age, *v.* Binet age (score)
 - growth periods, 7, 9, 132
 - levels, 14*ff.*, 132
 - surveys, organized, v, 1
 - tests, serial, 24
- Mentality, juvenile, 42
- Money, used in the tests, 40
- Months, naming the, 117
- Morning and afternoon, knowing, 115
- Moron, *v.* Diagnosis, formal, Retardation, mental
- Name, knowing family, 65
- Naming coins, 112
 - colors, 116
 - months, 117
 - objects, 82
 - self, 65
- Normal, the mentally, *v.* Analysis, vocational, Dull, Grading
- Norms, 5, 12*ff.*
- Notes to be made, 29, 31, 37, 41
- Objects, naming, 82
- Observers at examinations, 29
- Order of giving tests, 38
- Orientation tests, *v.* under Knowing
- Orthogenic case study, plan of, 24
 - classification, 132
- Paralysis, general (paresis), 18*ff.*
- Perception, *v.* Comparing, Picture
- Philadelphia special classes, 3, 35

- Physiological age, 12, 37
 Picture test, 20, 44*ff.*
 missing parts, 70
 Point-scale, 3, 4, 6, 48*ff.*
 Problem-solving, 18, 81
 Psycho-biological examination, 8, 24
 Psycho-educational grouping, 9, 11, 133
 Psychological method of testing intelligence, 13*ff.*, 24
 Psychology, Binet's dynamic, 9, 22*ff.*
 Psychopathology, critical studies in, vi, 21*ff.*
 Qualifications of examiners, 6, 7
 Quotient, Binet, "mental" or "intelligence," 12
 Racial norms, 5, 6, 12
 Range of testing, 5, 38
 Rate of pronouncing digits, 108
 Record form, standard, directions for using, 32*ff.*
 Recording judgments of responses, 31, 44*ff.*
 Reiteration of questions, 39, 44*ff.*
 Repetition of tests, 39, 50, 76
 Reproducing designs, 119, 144
 digits, 108
 ideas, 129
 sentences, 114
 Residues, mental, 12*ff.*, 23
 Responsibility, penal, 17*ff.*
 Retardation, age-grade, 36
 mental, 9, 17
 Reversed triangle, visualizing, 128
 Right and left, knowing, 90
 Rimes, giving, 106
 Scales for marking drawings, 130
 Scattering of successes, 10*ff.*
 Scholastic aptitude, 15
 School examiners, directions for, 32
 Scoring, method of, 9, 31, 44*ff.*
 Second chances, *v.* Repetition of tests
 Sentence, using three words in, 113
 reconstructing dissected, 120
 reproducing, 114
 Sex differences, *v.* Group norms, 5, 12*ff.*
 Sixty words, giving, 80
 Social norms, 5, 6, 12
 Speech defects, 19
 Square, copying, 66
 Stamps, counting cost of, 110
 Standardization of procedure, 5, 44*ff.*
 Stanford revision, 3, 6, 48*ff.*
 Stern, W., 4
 Subnormal, the mentally, *v.* Feeble-mindedness, Incompetency
 Suggestibility test, 93
 "Superior to use," defining by terms, 61
 Terman, L. M., 6, *v.* Stanford revision
 Tests of intelligence, *v.* under separate titles
 of school knowledge, vi, 15, 35
 uniform arrangement of, 4, 44*ff.*
 Three words, combining, 113
 Triangle, visualizing reversed, 128
 Typographical arrangement, 8
 Unconscious (automatic) life, 21, 22
 Use, defining in terms of, 59
 Variability, *v.* Norms
 Visualizing cut paper, 129
 reversed triangle, 128
 Vocational analysis, vi
 Weights, comparing lifted, 58, 62
 Witmer, L., 7
 Words, combining, 113, 120
 Yerkes, R. M., *v.* Point-scale

